

RESEARCH REPORT

Improving Food Security and Access in Arlington County, Virginia

Mixed-Methods Analyses and Recommendations

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Arlington is a world-class community and tourist destination located just five miles from the heart of the nation's capital. It's the geographically smallest self-governing county in the US, occupying slightly less than 26 square miles. Arlington maintains a rich variety of stable neighborhoods, quality schools and enlightened land use, and received the Environmental Protection Agency's highest award for [Smart Growth](#) in 2002. Home to some of the most influential organizations in the world—including the Pentagon—Arlington stands out as one of America's preeminent places to live, visit and do business.



The mission of the Arlington Food Assistance Center (AFAC) is to provide free supplemental groceries to families in our community. Since its founding in 1988, AFAC has responded to over 1.5 million visits from families in need and is the only organization solely dedicated to addressing long-term food insecurity among the residents of Arlington County. AFAC was founded by a group of citizens who recognized the lack of food resources among many of the residents of the county and believed that volunteer action could help to address this issue. With over 2,500 individuals helping AFAC sort, package, and distribute food, volunteer service remains at the heart of all that we do.

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Executive Summary

Household-level food insecurity and community-level food access reflect a family's ability to secure necessary resources to meet their food needs. Food insecurity is a "household-level economic and social condition of limited or uncertain access to adequate food."¹ Community-level food access describes households' ability to reach needed food resources, such as grocery stores and charitable food sites. In Arlington County, Virginia, an estimated 7.8 percent of households experienced food insecurity in 2019, slightly lower than the rate statewide of 9.4 percent.² Within the county, there was substantial variability across neighborhoods, ranging from an estimated 2 percent to nearly 15 percent of households.

This report examines food insecurity and access within and across Arlington County to understand the geographic distribution of food needs, how well existing programs and services meet those needs, how financial pressures impact food budgets, and barriers households face in accessing food resources. We mapped Arlington locations of retail and charitable food sources against estimated food insecurity rates to understand the food landscape. We fielded a survey to all residents of four neighborhoods with high food insecurity rates to understand how residents used and experienced different resources. We also conducted 16 in-depth interviews to gather residents' input on the services they used and barriers they faced and obtained additional insights from the Arlington County Food Security Task Force.³

This executive summary provides a high-level overview of the key findings of the Arlington County Food Security Study. Additional information is available in the full report and the methodological appendix.

Recommendations

We found that Arlington County had many resources available for residents to meet their food needs. However, Arlington County residents reported cost pressures in purchasing food and balancing household finances and bills, especially during a period of rising inflation and housing costs. Some strategies the county could consider to improve the retail food environment include the following:

- incentivizing affordable grocers that offer culturally appropriate food
- offering gas cards or subsidized public transportation
- expanding SNAP outreach

- providing grocery gift cards
- subsidizing or waiving grocery delivery fees for SNAP participants

In addition, free groceries and meal services—which can be important supplements for households living with food insecurity—were not equitably distributed across the county. We highlight opportunities for improvements to charitable food options, including the following:

- opening additional sites in the Crystal City area to meet the needs of Asian residents and children in households with low income
- increasing food delivery options for residents with mobility challenges
- removing or softening referral requirements
- expanding hours of operation to evenings and weekends
- offering protein boxes to households in need
- enhancing language access and online communication resources

Finally, Arlington County could implement various proactive strategies to ease some of the financial pressure on Arlington County residents with few economic resources or minimal savings, including the following:

- offsetting or managing housing and utility costs
- taking measures to maintain, develop, and protect affordable housing throughout the county
- providing direct cash infusions to households
- implementing matching savings programs

Findings

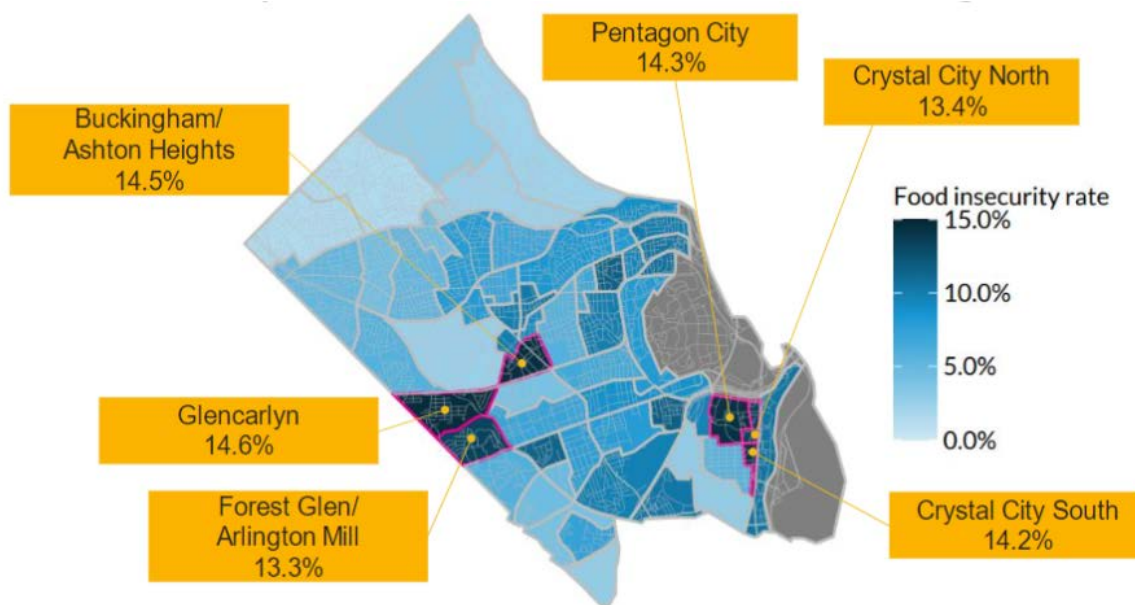
The following summaries reflect key findings from each section of the report that informed these recommendations summarized above. These are organized as they appear in the body of the report.

Geographic Distribution and Demographics of Food Insecurity

For Arlington County to assess the adequacy of supports, it is helpful to understand where households live who are struggling to afford food.

- Estimated food insecurity rates were concentrated in south and east Arlington County, especially the Glencarlyn, Buckingham/Ashton Heights, Pentagon City, Crystal City South, Forest Glen/Arlington Mill, and Crystal City North neighborhoods (figure 1).
- We surveyed residents living in four neighborhoods with the highest food insecurity rates (from 13.3 to 14.6 percent) in the county and found that residents were more likely to rent their homes and have low incomes, and 17 percent were Social Security beneficiaries, which suggests they are living on a fixed income.

FIGURE 1
Food Insecurity Rates Among the Top Six Census Tracts in Arlington County



Sources: Estimated food insecurity rates were provided by Craig Gundersen, PhD, advisor to this project and lead researcher on “Map the Meal Gap,” Feeding America, accessed March 14, 2022, <https://map.feedingamerica.org/county/2019/overall/virginia/county/arlington>. Data used to estimate food insecurity rates were sourced from the 2019 American Community Survey five-year estimates.

Notes: We gray out 2 of the 59 tracts defined in the 2019 ACS estimates. Tract 510139801 is largely covered by the Arlington Cemetery and tract 510139802 by the DCA International Airport. Tracts outlined in magenta represent tracts with high estimated food insecurity rates.

Financial Distress and Food Security

To understand the challenges facing households experiencing food insecurity, we examined their financial circumstances. Food insecurity is a household economic condition, so it is crucial to contextualize food insecurity with other household-level economic challenges and pressures.

- Households experiencing food insecurity and renters with low incomes had substantial difficulty paying expenses.
- Many residents living in neighborhoods with high food insecurity rates reported not having savings to buffer against a financial emergency.
- Residents experiencing food insecurity often coped with financial emergencies by borrowing money from a friend or family member or paying unexpected costs off on their credit cards over time. Even using these strategies, 1 in 3 residents experiencing food insecurity would not be able to pay for an unexpected \$400 expense.
- Food budgets were often the first to be cut in times of financial hardship, and households made trade-offs between food and bills like rent and utilities when money was tight.

Access to Retail Food

Households experiencing food insecurity may use a combination of their own money, Supplemental Nutrition Assistance Program (SNAP) and other benefits, and charitable groceries or meals to meet their food needs. Understanding Arlington County households' ability to reach SNAP retailers provides insight into potential barriers to redeeming SNAP benefits or purchasing groceries.

- Most residents, especially those with high estimated food insecurity rates, had access to a SNAP retailer—a grocery store or other non-convenience store retail food outlet authorized to redeem SNAP benefits—within a 40 minutes of roundtrip travel time. This means that SNAP retailers were close to households in need and that transportation systems connected households adequately to retail food.
- Surveyed residents prioritized cost of groceries in deciding where to shop and reported challenges in affording healthy and culturally appropriate food. Residents reported some challenges in paying for groceries, especially meat, as the cost of food increased 6.3 percent (and 14.8 percent for meat) between December 2020 and December 2021.⁴
- Some residents struggled with transportation in purchasing groceries, particularly those with mobility restrictions or without a car. Respondents experiencing food insecurity were more likely to walk, get a ride, or use the Metro than those who were food secure, who were more likely to own a car and drive.

- Few residents reported using online ordering and delivery of groceries, but those who did reported that it was crucial for them. Ordering groceries online particularly helped residents with mobility restrictions, though delivery fees could be high.

Access to Charitable Food

Free groceries and meals are an important supplement for households experiencing food insecurity. Households for whom SNAP or other federal nutrition benefits are not fully adequate and households who do not qualify for federal nutrition programs may find charitable food resources particularly beneficial in meeting their food needs.

- About half of residents who were experiencing food insecurity at the time of the survey reported using free groceries or meals. Most residents surveyed who used these resources accessed free groceries or meals from one location one to three times each month.
- Most charitable food sites in Arlington County were open year-round, but fewer than half were open to all households in the county—they may have served children, seniors, or residents of a specific area. Fewer than 1 in 5 charitable food sites in the county (excluding child summer food program sites) offered weekly service and evening or weekend hours.
- The Crystal City and Pentagon City areas had relatively high estimated food insecurity rates compared with the rest of the county and low access to existing charitable food resources.
- Residents who accessed charitable groceries or meals reported satisfaction with services, but many wanted greater cultural appropriateness of the foods offered.
- The cost of transportation, including public transportation and gas, may be a barrier to accessing free groceries and meals. Pride also prevented some residents in need from using available services.
- Nearly 3 in 5 households surveyed that were not using charitable food resources reported they were not aware of charitable food resources. Residents experiencing food insecurity who did not access free groceries or meals reported they were not in need or did not want to receive charity. This suggests that stigma may play an important role in which residents feel comfortable accessing charitable food.
- Residents experiencing food insecurity who did not use charitable food resources often did not know where to access free groceries and meals. They reported that they expected few barriers in finding this information and would seek it out online, if needed.

- Households with children were at greater risk of food insecurity than households without children and faced challenges managing food budgets. Further, in the area near the DCA International Airport and Crystal City, few charitable food sites specifically targeted children despite relatively high child poverty rates.
- Older adults are relatively well-served by existing charitable programs, although some residents had mobility impairments that prevented them from traveling to food sites.

Racial Equity and Food Access

Food insecurity disproportionately affects Black, Hispanic/Latinx, and Asian households. To develop a holistic approach to food equity and access, it is imperative to account for inequities produced by structural racism.

- Survey data show Black and Hispanic/Latinx respondents reported significantly higher rates of food insecurity than white respondents.⁵
- Asian households with low incomes had to travel further to access charitable food sites, compared with Black and Hispanic/Latinx households. The Crystal City neighborhood had a concentration of Asian residents with low incomes and low access to charitable food.
- Residents who were Asian, Black, and Hispanic/Latinx with incomes below the poverty level were more geographically concentrated than white residents. Areas with higher shares of Black and Hispanic/Latinx households with low incomes had better charitable food access than areas with Asian and white households with low incomes.

Future Directions

This study provided a snapshot of the financial and food challenges faced by households experiencing food insecurity in Arlington County in 2021. The findings from this study point to future directions for county investments where Arlington County could build on its strengths and address residents' concerns and barriers. Further study, including updating this analysis, considering a county-wide survey, and evaluating interventions, would help the county further understand and tailor interventions to meet residents' ever-evolving needs.

Errata

This report was revised on April 7, 2022, to acknowledge the significant role that the Arlington Food Assistance Center (AFAC) played in sharing data, providing information on their services and the local community, and supporting survey completion, which made this research possible.

We also clarified that nonprofits and other organizations distribute free groceries and meals in Arlington County but the county itself does not, and that residents can get a referral for AFAC services from Arlington Public Schools and other safety net nonprofits.

Improving Food Security and Access in Arlington County, Virginia

Arlington County, Virginia, covers a 26-square-mile area immediately west and southwest of Washington, DC. Arlington has one of the highest costs of living in the country, particularly for housing, which have increased further with the planned establishment of Amazon's new corporate headquarters in the county.⁶ Despite the area's reputation as wealthy and well-resourced, more than 6,700 of the county's 108,604 households⁷ were referred to the Arlington Food Assistance Center in 2021,⁸ signaling that this abundance is not shared by all residents. This study focuses on understanding the landscape of food insecurity and access in Arlington County and suggests possible directions for policies and programs to strengthen the local systems that support households' food security and access.

Food security defined is "access by all people at all times to enough food for an active, healthy life."⁹ However, nearly 10.5 percent of households in the US (or 13.8 million households) and an estimated 7.8 percent in Arlington County, Virginia,¹⁰ (or about 8,727 households)¹¹ have limited or uncertain access to adequate food (Coleman-Jensen et al. 2021). Arlington County's food insecurity rate is also very similar to the state's food insecurity rate, despite the more varied population across the state. Throughout the year, households experiencing food insecurity have difficulty providing enough food for everyone and may decrease food consumption or experience disrupted eating patterns (Coleman-Jensen et al. 2021). Similarly, households may not have ready access to retail stores to purchase food or to charitable food sites to access free meals and groceries.

Food insecurity is a household economic condition. It does not exist in a vacuum. It is affected by households' access to resources to buffer against adverse events. Households combine income, public benefits, school meals and services (like the National School Lunch Program), and free meals and groceries to meet their households' food needs. Local community resources can enable households to get the food they need to establish food security, but community resources may not be well-aligned with households' needs, where households may not get food that is culturally appropriate, may face challenging-to-navigate enrollment processes, or may not be open at hours when households can attend. We explore access to charitable food and retail stores where households can redeem SNAP benefits for households in Arlington County, Virginia, to paint a picture of how households access and use these services, and ways to strengthen the available offerings.

Factors That Affect Food Insecurity

Community conditions affect food insecurity and access. Food insecurity describes households that lack the resources to live a healthy, active life during some portion of the year. Community-level food access describes households' ability to reach needed food resources, such as grocery stores and charitable food sites. **The local food environment, the labor market, transportation, housing, school and child care, low assets and debt, and other limitations in government supports may introduce financial, social, or physical barriers to food access and security and impact households' available resources to buy or get food.** As food insecurity has complex roots, solutions to address it require comprehensive and cross-sectoral policy change. We place food insecurity in the local community context to better understand the ways key drivers of food insecurity mediate households' experiences and to pinpoint additional strategies to improve households' food insecurity.

To fully understand food insecurity at the local level, accounting for racial inequities produced by structural racism is critical. Food insecurity disproportionately affects Black, Hispanic/Latinx, and Native American or Alaska Native households. Each of these groups experience higher rates of food insecurity than the national average—21.7 percent for Black households and 17.2 percent for Hispanic/Latinx households, compared with 7.1 percent for white households (Coleman-Jensen et al. 2021). Although food insecurity rates are not reported by Coleman-Jensen and colleagues (2021), 1 in 4 Indigenous people experience food insecurity and may experience more extreme insecurity.¹²

Conditions that affect food insecurity, such as rates of unemployment, disability, and concentrated poverty disproportionately affect communities of color. These issues have been drivers of racial/ethnic disparities in food insecurity and reflect a legacy of policy choices and inequitable investments that constrain opportunities for communities of color (Odoms-Young 2018). Additionally, people of color have experienced higher rates of COVID-19 infections and deaths and higher rates of pandemic-related job loss, were more likely to work in jobs that placed them at high risk of COVID-19 infection, and experienced greater financial insecurity and distress (Geno Tai et al. 2021; Noe-Bustamante, Krogstad, and Lopez 2021).¹³ This suggests that people of color may face an uneven recovery from the COVID-19 pandemic, potentially exacerbating prepandemic disparities in food insecurity and financial well-being (Coleman-Jensen et al. 2021). Consequently, this study examines equity in access to key resources and systemic barriers facing households of color experiencing food insecurity.

Research Questions

This study aims to understand food insecurity within Arlington County, Virginia, and how external factors such as socioeconomic characteristics, financial pressures, and resource availability relate to food access and security. This research was undertaken in partnership with the Arlington County Food Security Task Force, a committee of 28 local Arlington stakeholders who envision “a community where all have enough healthy food to feed themselves and their households.”¹⁴ We use complementary quantitative and qualitative evaluation methods to answer six core research questions:

1. To what degree are households in the county experiencing marginal food security and food insecurity?
2. Where is food insecurity concentrated geographically? Who is affected by food insecurity in the county (in terms of race, ethnicity, household size, employment status, and income)?
3. How well do existing benefits programs and charitable food services meet households’ needs in terms of spatial proximity and quality, healthfulness, and cultural appropriateness of food offered?
4. What and how many resources do households use to meet their food needs?
5. How do financial pressures impact households’ food budgets, and what trade-offs are made when money is tight?
6. What barriers do households encounter that keep them from accessing resources in the community? How would households like to learn about available resources?

Methods

To achieve the study goals and answer these research questions, we developed a mixed-methods approach, including the following:

- a geographic analysis that examines the distribution of food insecurity and available resources, such as Supplemental Nutrition Assistance Program (SNAP) retailers and charitable food
- a transportation analysis that calculates travel times by census tract in Arlington County to evaluate access to SNAP retailers and charitable food sites via public and private transportation
- a survey fielded to residents of Arlington County to understand on-the-ground experiences

- follow-up in-depth interviews with a sample of survey respondents

For a more detailed description of the methodology used for this report, see the appendix.

Estimating Census-Tract-Level Food Insecurity in Arlington County

We used the methodology from Feeding America's Map the Meal Gap¹⁵ to estimate the food insecurity rate in each of the county's 59 census tracts using data from the Census Bureau's 2019 American Community Survey. The analysis did not capture the conditions after the beginning of the COVID-19 pandemic, because 2019 is the last year of Census data available for this analysis. The model incorporated key factors affecting food insecurity identified in the research on food insecurity. This included tract-level data on the share of households with incomes below the federal poverty level,¹⁶ the unemployment rate, median income, homeownership rates, share of the population affected by a disability, and the share of people identifying as Black and Hispanic/Latinx. Throughout the analysis, we also reference census tracts we identified as having high estimated food insecurity rates. We identified these tracts by placing the 59 tracts in order of highest to lowest estimated food insecurity rates and flag the top 6 tracts (the top 10 percent).

Quantitative Mapping and Transportation Analysis

Through a mapping and transportation analysis at the tract level, we assessed household characteristics and travel time to food resources. We geolocated non-convenience store SNAP-eligible retailers based on data from the US Department of Agriculture (removing convenience stores, pharmacies, and gas stations). With data from the Task Force, we also geolocated charitable food sites. We estimated travel time from the population center of each census tract to retail and charitable food sites using a transportation model incorporating public (buses and metro) and private (car) transportation. We also incorporated data from the Arlington County Food Security Task Force on eligibility requirements and scheduling for charitable food providers. These analyses relied on data from the 2019 American Community Survey five-year estimates and September 2021 travel times.

Survey

To understand perspectives of community members and their experiences with food insecurity, we conducted a survey with a sample of Arlington residents in November 2021 in English and Spanish. We captured key demographics, retail food access and use, charitable food access and use, and financial

hardships. We targeted residents in census tracts with high rates of food insecurity within the county and high shares of the population identified as Black or Hispanic/Latinx: tracts 1020.03, 1021, 1022, and 1033. In all, 9,143 residents in these census tracts were invited to participate in the survey via postcards, and each household was offered a \$10 gift card for completion. We received 802 total responses (a 9 percent response rate).

Interviews

We also conducted 16 in-depth interviews with survey respondents to understand how food insecurity manifests in daily living and to contextualize results from the survey and geographic analyses. We asked about strategies used to meet food budgets; how they interacted with retail food, financial pressures and coping strategies; and barriers to accessing food assistance. Interviews were approximately 25 minutes long, conducted in December 2021 and January 2022 in English and Spanish. Respondents received a \$25 gift card for participating in the interview.

Geographic Distribution and Demographics of Food Insecurity

Based on mapping of public data, we found food insecurity was concentrated in south and east Arlington County. The survey provided additional detail on the characteristics of households experiencing food insecurity in targeted census tracts in fall 2021.

High Estimated Food Insecurity Rates Were Concentrated in South and East Arlington County

The top six tracts (top 10 percent) with the highest estimated food insecurity rates were concentrated in south and east Arlington County, especially along the Columbia Pike and Arlington Boulevard corridors in the Pentagon City and Crystal City neighborhoods. One tract with high estimated food insecurity rates was located north of Arlington Boulevard. The estimated food insecurity rates in these tracts ranged from 13 to 15 percent.

Other tracts that were not in the top 10 percent but had moderate shares of the population estimated as experiencing food insecurity included tracts in north Arlington between the northern edge of Fort Meyer/Arlington Boulevard and Clarendon Boulevard, in south Arlington along interstate 395

and Glebe Road, and near the DCA International Airport. Tracts with the lowest estimated food insecurity rates were mostly located in the northwest part of the county. Figure 2 shows the estimated food insecurity rates, highlighting in magenta the six tracts with the highest rates.

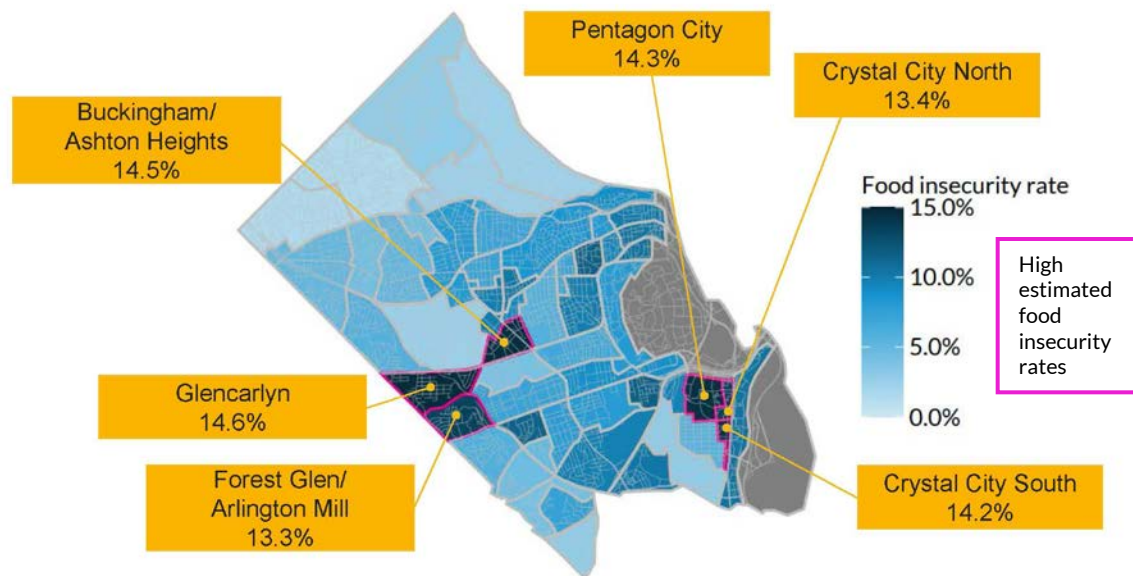
To check the robustness of the estimated food insecurity estimates, we also examined and modeled food insecurity without an indicator for homeownership. This was to test for the effect of the largely rental residences in southeast Arlington (because homeownership plays a large role in the model that estimates food insecurity). Even with this test, the same tracts emerged as having the highest estimated food insecurity rates, including the two tracts in Crystal City.

The geographic distribution of food insecurity is notable, as the largely high-rise apartment complexes in the Crystal City neighborhood had not been a primary target of food access interventions in Arlington County. Pentagon City had been targeted somewhat more, given the higher concentration of affordable housing in that area.¹⁷

FIGURE 2

Food Insecurity Is Concentrated in South and East Arlington

Map of estimated food insecurity rates by census tracts in Arlington County



Sources: Estimated food insecurity rates were provided by Craig Gundersen, PhD, advisor to this project and lead researcher on “Map the Meal Gap,” Feeding America, accessed March 14, 2022,

<https://map.feedingamerica.org/county/2019/overall/virginia/county/arlington>. Data used to estimate food insecurity rates were sourced from the 2019 American Community Survey five-year estimates.

Notes: We gray out 2 of the 59 tracts defined in the 2019 ACS estimates. Tract 510139801 is largely covered by the Arlington Cemetery and tract 510139802 by the DCA International Airport. Tracts outlined in magenta represent tracts with high estimated food insecurity rates.

Survey Respondents Reflected the Population and Had High Rates of Food Insecurity

The four surveyed census tracts all had high rates of estimated food insecurity. Households were relatively small, with slightly more than one-third of responding households composed of single adults. Relatively few surveyed households owned their homes, and about half had incomes below 250 percent of the federal poverty level. Respondents were diverse in their identified races and ethnicities, and a substantial share were born outside the United States.

Surveyed households had similar characteristics as the published census tract characteristics, as shown in table 1. The largest discrepancy was that the surveyed households were less likely to identify as Black than the census tract average, with 11 percent of survey respondents identifying as Black compared with 25 percent in the census tract average. The survey respondents were somewhat more likely to be employed, and the yearly average income for surveyed respondents was higher than the census tract average at \$98,546, compared with \$87,700. These caveats are important to keep in mind when interpreting survey results.

TABLE 1
Demographics of Survey Respondents, Compared with Average Values among Census Tracts and Arlington County

	Mean/Percentage (%)		
	Survey respondents (2021)	Census tract average (2015–19)	Arlington County average (2015–19)
Average household size	3.3	2.4	2.1
Single adult households	39%	39%	38%
Child in the household	33%	30%	21%
Older adult in the household (ages 60+)	29%	27%	22%
Any household employment	89%	69%	74%
Homeownership	38%	31%	43%
Income			
Yearly average income	\$98,546	\$87,700	\$154,331
Yearly median income	\$60,000	\$70,679	\$119,755
At or below 250% of the FPL ¹⁸	47%	-	-
Renter with low income ¹⁹	45%	-	-
Race/ethnicity (%)			
White	40%	32%	61%
Hispanic/Latinx	28%	29%	16%
Asian	14%	10%	10%
Black	11%	25%	9%
Mixed	5%	3%	3%
Other (NAAN, NHPI)	2%	1%	1%
Region of origin			

	Mean/Percentage (%)		
	Survey respondents (2021)	Census tract average (2015–19)	Arlington County average (2015–19)
US and Canada	65%	63%	79%
Mexico, Central/South America, and Caribbean	19%	17%	8%
Asia	12%	9%	9%
Europe	3%	2%	3%
Africa	2%	9%	3%

Sources: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Census tract and Arlington County averages from the American Community Survey's 2015–19 five-year estimates. Survey responses represent the perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

Notes: FPL = federal poverty level. NAAN = Native American or Alaska Native. NHPI = Native Hawaiian or Pacific Islander. Having an older adult in the household and a child in the household are not mutually exclusive.

Additionally, 17 percent of survey respondents reported receiving Social Security income (SSI, SSDI, or OASDI) in the 30 days before the survey, 16 percent reported receiving SNAP, and 13 percent reported receiving a housing voucher or rental subsidy (table 2).

TABLE 2

Reported Benefit Receipt in the Prior 30 days among Survey Respondents

Benefit	Percentage
Social Security (SSI, SSDI, or OASDI)	17.0%
Supplemental Nutrition Assistance Program (SNAP)	16.0%
Housing choice voucher or rental subsidy	12.8%
Child Tax Credit	12.5%
Women, Infants, and Children (WIC)	4.0%
Unemployment insurance benefits	2.9%
Temporary Assistance for Needy Families (TANF)	1.3%

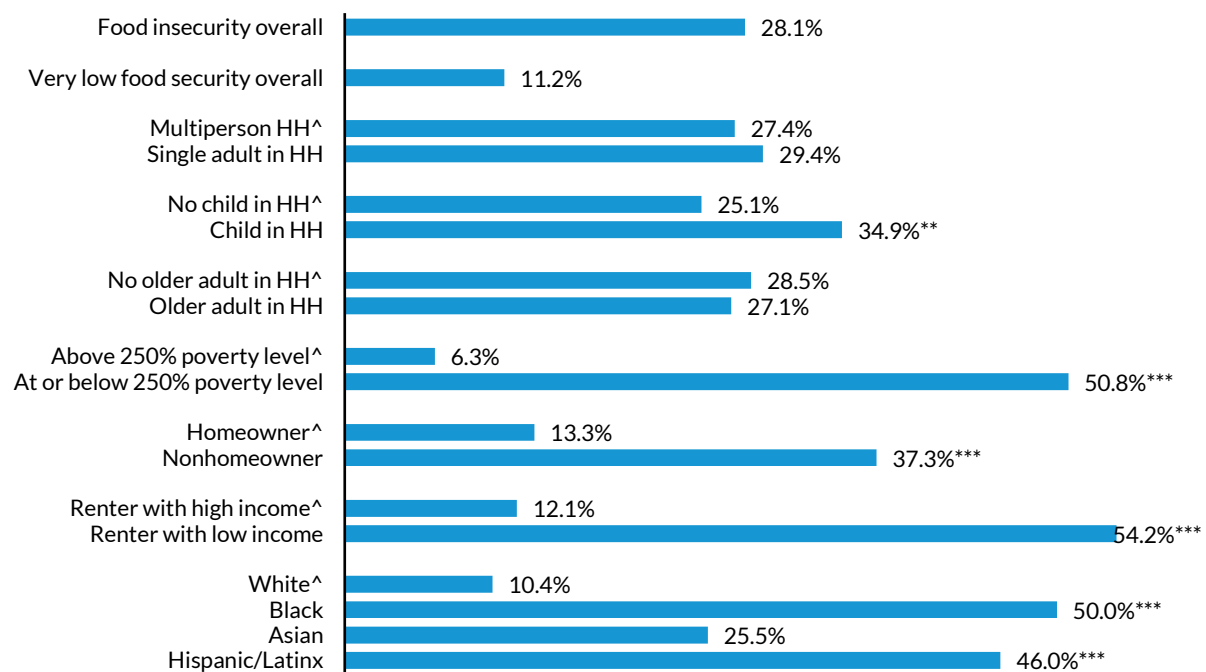
Source: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Survey responses represent the perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

More than one-quarter of surveyed respondents (28.1 percent) reported facing food insecurity in the prior 30 days, with 11.2 percent of respondents reporting very low food security and 7.4 percent reporting marginal food insecurity.²⁰ The measured food insecurity rate was higher than the estimated rate for these tracts, likely for multiple reasons. First, the estimated food insecurity rates were based on 2015–19 American Community Survey data, which preceded the COVID-19 pandemic and associated economic downturn, while the survey data were from fall 2021. The estimated food insecurity rates are based on data from 2015–19 because this was the most recent year of data available for estimating food insecurity at the local level. Second, the estimated food insecurity rates were predicted based on the methodology described in the appendix and therefore likely differed from measured rates. Third,

the survey may not have been perfectly representative of the populations of the targeted tracts, though the household characteristics were close on most measures.

Certain groups were at higher risk for experiencing food insecurity, as measured in the survey (figure 3): those with incomes at or below 250 percent of the federal poverty level, nonhomeowners, renters with low incomes, households with children in the household, and Black and Hispanic/Latinx respondents. Renters with low incomes reported the highest rates of food insecurity, which aligns with literature showing this group is often severely housing-cost burdened, spending more than half of their incomes on rent and utilities,²¹ and thus more vulnerable to other material hardship like food insecurity. Black and Hispanic/Latinx respondents also show highly elevated rates of food insecurity, compared with white respondents.²²

FIGURE 3
Characteristics of Survey Respondents Experiencing Food Insecurity



Source: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Survey responses represent the perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

Notes: Asterisks indicate statistically significant differences (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$) compared with the reference group, indicated with a ^. HH = household.

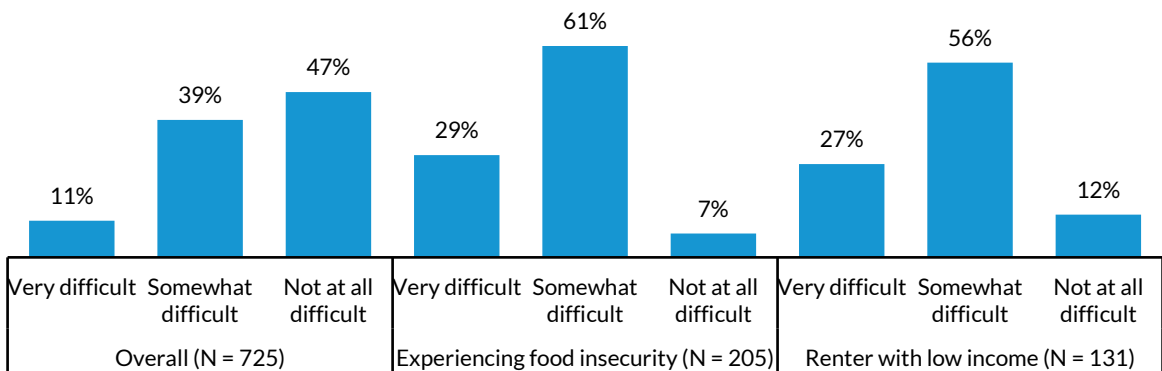
Financial Distress and Food Insecurity

Many households that experienced food insecurity also faced challenges paying bills and other household expenses, including especially renters with low incomes. Though food hardship and limited financial resources are not always linked (Bartfield and Collins 2017), it is important to understand the competing financial demands households experiencing food insecurity face, as this impacts their ability to afford retail food. Families often did not have a savings buffer to turn to when a financial emergency came up, limiting their ability to cope with financial distress. Food budgets were the first to be cut in times of financial hardship, throwing some households into greater food insecurity. Arlington County could buffer the financial security of households by providing utility and water bill relief, supporting matched savings programs, and bolstering direct financial supports for households.

Households Experiencing Food Insecurity and Renters with Low Incomes Had Higher Financial Distress

Among survey respondents overall, 11 percent found it very difficult to cover their expenses and bills in a typical month. However, we found that households experiencing food insecurity and renters with low incomes overwhelmingly had the most difficulty paying expenses: 29 percent of respondents experiencing food insecurity found it very difficult to cover their expenses, and 27 percent of renters with low incomes found paying expenses very difficult (figure 4).

FIGURE 4
Reported Difficulty Covering Expenses and Bills in a Typical Month, Overall and by Food Insecurity and Renter with Low Income Status



Source: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Survey responses represent the perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

As shown in table 3, we saw a similar trend in difficulty paying bills, where respondents experiencing food insecurity (42 percent) and renters with low incomes (34 percent) had more difficulty paying rent, gas, or electricity bills compared with the overall population (17 percent) in the prior month, with gas and electricity being particularly difficult to pay (30 percent for respondents experiencing food insecurity and 24 percent for renters with low incomes). Several interviewed respondents acknowledged that the cost of living in Arlington is quite high—an observation reflected in other research²³—but they said they stayed in the county for good schools, being close to work, or staying close to family or support networks.

TABLE 3
Hardship Paying Bills in the Prior Month among Survey Respondents

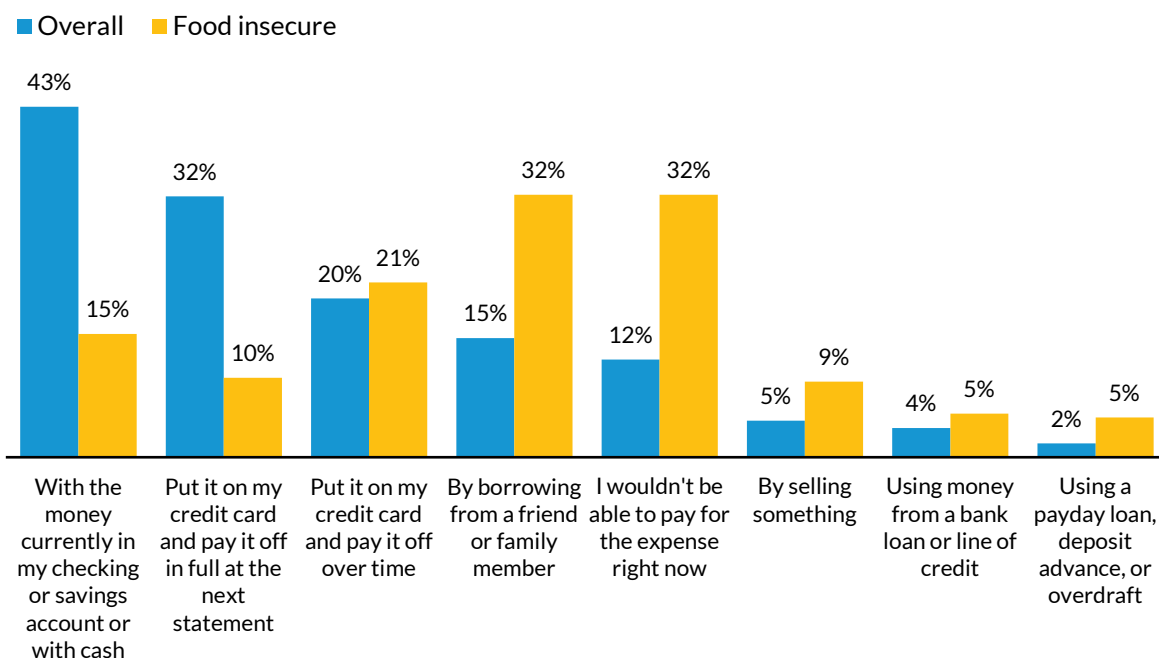
	Difficulty paying any bills overall	Unable to pay the full amount of rent or mortgage	Unable to pay the full amount of gas or electricity bills	The gas or electric company turned off service
Overall	17%	11%	12%	2%
Experiencing food insecurity	42%	28%	30%	5%
Renter with low income	34%	23%	24%	4%
Child in the household	26%	17%	19%	3%

Source: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Survey responses represent the perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

Many respondents also lacked a savings buffer they could rely on when they faced a financial emergency. When asked how they would pay off an emergency \$400 expense, most respondents said they would either use the money in their bank account (43 percent) or pay it off with their credit card in full (32 percent) or over time (20 percent). However, respondents experiencing food insecurity were much less likely to have these options: about one-third (32 percent) said they would not be able to pay for the expense right now, and many would need to rely on less financially stable options, such as borrowing from a friend or family member (32 percent) (figure 5).

FIGURE 5

Methods of Paying a \$400 Emergency Expense Based on Current Financial Situation among Survey Respondents, Overall and by Food Insecurity



Sources: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Survey responses represent the perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

Note: Response options were not mutually exclusive; respondents were told that if they would use more than one method to cover a \$400 expense, then to select all that apply.

Financial Distress Led to Reductions in Food, among Other Coping Strategies

Food budgets were often the first to be cut in times of financial hardship. Interviewees had to cope with limited food resources, especially during the pandemic. One respondent who lived on her own said,

I've had a few months where I just didn't have money to go shopping. I find myself just eating whatever's left in the house. If that meant eating eggs for a couple of days in a row, then I just ate eggs. If I had just bread, I would just—whatever I could find to make a sandwich, whether it was butter or peanut butter. That would be my meal or whatever. Things are much better now. I'm eating better now.

Respondents continued to cope with financial pressures in different ways, with one of the most common methods being changing or decreasing the types of food they purchased. Interviewed residents mentioned trade-offs like buying frozen instead of fresh vegetables, buying fewer luxury items, and buying less meat. Eight residents (half of interview respondents) specifically mentioned that meat had become more expensive recently, and they needed to buy less.

Other than cutting food budgets, interviewed respondents reported taking loans or borrowing money from friends and family, taking on extra hours or an extra job, strict budgeting, and not paying other bills to cope with financial hardship. One interviewee shared that her whole family had to pitch in during the pandemic by working more hours; her mother took on an additional job driving for a rideshare company on the weekends to get by. The interviewee stated,

There are definitely little things that we had to give up. Maybe we might go a week without something or the television. We cut our cable or our phone plan. We might not have Internet for a little bit. I don't know, they're just little things.

Another interviewee, a mother of two, reported difficulty affording food for the family while also paying rent. She said “Yes, we have reduced our food to adjust for the rent because, you know, you always have to have [the rent].”²⁴ One adult living with her child was not eligible to receive SNAP but was sometimes able to get food from the restaurant she worked in, but she could not rely on that as a regular food source and still struggled to pay certain bills. She noted, “Look, sometimes you have to pay for the phone and all that stuff. It is necessary—because it is no longer a luxury to carry a telephone, it's a necessity, I say.”²⁵

Retail Food

In analyzing the retail food landscape, we found that retailers are well distributed across the county. But being close to a retailer is not a guarantee that residents can find and afford the food they need or want. Strengthening the retail environment to meet the needs of households experiencing food insecurity in Arlington requires greater attention to cost concerns, which could be achieved by providing gas and public transportation subsidies, offsetting or waiving grocery delivery fees for SNAP participants, increasing SNAP outreach to potentially eligible households in the county, providing grocery gift cards to ineligible households who are experiencing food insecurity, and implementing financial incentives for ethnic grocers to locate in underserved areas.

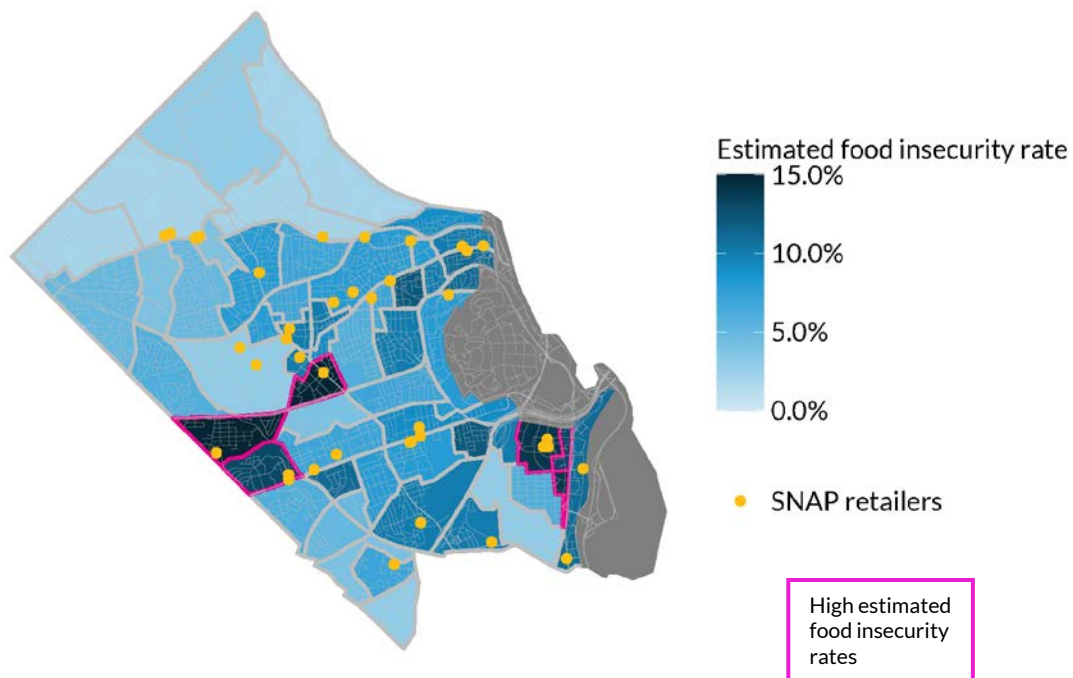
SNAP Retailers Were Spread across the County

We identified 41 food retailers across Arlington County that accepted SNAP benefits in late 2021. SNAP benefits supplement the food budget of eligible households with low incomes so they can purchase healthy food. While SNAP is often the first line of defense for households experiencing food insecurity, not all households in need use SNAP.

To emphasize retailers that offer a variety of food items for a complete and healthy diet, we excluded convenience stores, gas stations, and pharmacies, focusing on retailers such as supermarkets, ethnic food retailers, and farmers markets.

There was a concentration of retailers along the Wilson Boulevard and Fairfax Drive in north Arlington, along the Columbia Pike corridor in south Arlington, and in the Pentagon City neighborhood in southeast Arlington County. There were fewer SNAP retailers in far north and northwest Arlington, though estimated food insecurity rates in those areas was relatively low. Figure 6 shows the distribution of SNAP retailers across the county overlaid on a map of the estimated food insecurity rates by tract. Two of the six tracts with high estimated food insecurity rates—both in Crystal City—did not have a SNAP retailer located in the tract, but SNAP retailers were in neighboring tracts. While areas in the northwest part of the county have few SNAP retailers in their neighborhoods, these tracts also have low poverty rates, ranging from 2 to 5 percent. Constrained access to SNAP retailers in high-income tracts may negatively impact the access of households with lower incomes living in these wealthier neighborhoods.

FIGURE 6
Estimated Food Insecurity Rates and Nonconvenience-Store SNAP Retailers



Sources: Estimated food insecurity rates were provided by Craig Gunderson, PhD, advisor to this project and lead researcher on “Map the Meal Gap,” Feeding America, accessed March 14, 2022, <https://map.feedingamerica.org/county/2019/overall/virginia/county/arlington>. Data used to estimate the food insecurity rates

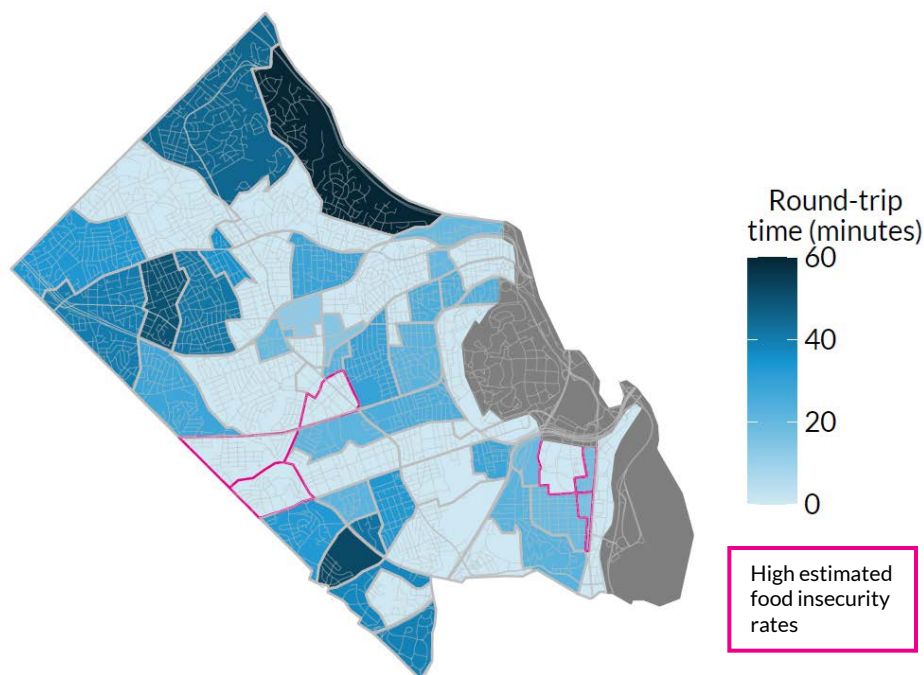
were sourced from the 2019 American Community Survey five-year estimates. Locations of SNAP retailer data were obtained from the United States Department of Agriculture's Food Nutrition Service's SNAP "Retailer" data, February 5, 2020 <https://www.fns.usda.gov/snap/retailer>.

Notes: We used the latest US Department of Agriculture Food and Nutrition Service SNAP retailer data, accessed November 2021. We are able to distinguish between types of retailers by the names provided in the dataset. Additionally, we spot-checked retailers to ensure we were not including retailers excluded in the analysis plan, including gas stations, convenience stores, and pharmacies. Spot checks were done using the retailer's address and cross-checking with Google Maps data.

Most residents in Arlington County had access to a SNAP retailer within a 40-minute round trip, particularly residents in areas with high estimated food insecurity rates. One tract in far north Arlington could not access a SNAP retailer within 40 minutes round trip by weighted travel time, and six tracts could not access a SNAP retailer in this time by public transit. If we used a 30-minute round-trip time cutoff, five tracts did not have access to a SNAP retailer by weighted travel time and thirteen tracts did not have access in this time by public transit travel time. All six tracts with high estimated food insecurity rates could access a SNAP retailer within 30 minutes round trip (figure 7).

FIGURE 7

Nearly All Tracts Could Access a SNAP Retailer within 40 Minutes Round Trip via Public Transit



Sources: Authors' calculations using 2015–19 American Community Survey demographic data and travel time data calculated using opentripplanner for routing and SNAP retailer locations as of November 2019 from the United States Department of Agriculture.

Cost, Food Quality, and Access All Matter to Residents

Based on the survey, the most common retail stores residents of the surveyed census tracts reported visiting for groceries were Giant (28 percent), Harris Teeter (22 percent), and Trader Joe's (16.7 percent) (see table 4).

TABLE 4

Most Commonly Visited Stores by Residents Living in Neighborhoods with High Rates of Food Insecurity

Store name	Type	Percentage
Giant	Supermarket	28.4%
Harris Teeter	Supermarket	22.3%
Trader Joe's	Small grocery store	16.7%
Aldi or Lidl	Small grocery store	13.1%
Costco	Wholesale club	11.7%
Safeway	Supermarket	8.8%
Target	Discount or big box store	7.7%
Whole Foods	Small grocery store	6.4%
CVS	Convenience store	5.90%
Glebe Market	Small grocery store	4.60%
BJ's	Wholesale club	4.4%
Walmart	Discount or big box store	4.1%
Mega Mart	Ethnic grocery store	2.8%
7-Eleven	Convenience store	2.6%
Food Star	Ethnic grocery store	1.5%
H Mart	Ethnic grocery store	1.3%
Lubber Run	Farmers market	1.3%

Source: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Survey responses represent the perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

Note: Respondents were asked to choose up to three options for where they do most of their grocery shopping.

Interviewees prioritized cost, quality, ability to travel, and food being culturally appropriate when deciding where to shop for groceries. Cost was one of the most common factors, with several interviewees indicating a preference for affordable stores like Aldi, Lidl, and Walmart. One respondent, a single adult, preferred shopping at Aldi, as he felt stores like Giant, Harris Teeter, and Whole Foods were out of his budget. He recommended increasing the availability of affordable stores in place of more expensive options, stating,

They're building a lot of these eat, play, live type apartment complexes where they've got apartments, and on the first floor is a bunch of grocery stores and restaurants...It'd be nice if Aldi or Lidl stepped into one of those instead of a Harris Teeter...It seems like every time they do one of these, it's...a high-end grocery store that's stepping in. It just plays into the high-rent, high-food, high-everything about this Arlington area. It'd be nice if one of these discount retailers could step in and really take hold of some of these places.

The quality of food available was also important to interviewees. A few respondents felt they were able to find the quality of food they needed from discount stores, with one mentioning that Walmart carried halal meat and another stating that Aldi had low-carb bread, vegan pasta, and corn flour chips, which were all good for his diabetic diet. One woman interviewed appreciated the quality of fresh produce available at farmers markets, but cost was an inhibiting factor, as she found farmers markets to be “like three times more than supermarket or food markets, more expensive than Whole Foods—which just doesn’t make sense to me.” Another interviewee recommended increasing the availability of fresh food markets in Arlington, stating, “I know there is a fresh food market on Saturday around the Courthouse area, but I work on Saturdays. There are a lot of us that work on the weekends and I’d like to see one on Sunday or maybe on a weekday to where some of us have the opportunity to get that fresh meat or that fresh cheese or something special for ourselves.” This observation may point to a gap in awareness of available offerings, as Arlington County does have multiple farmers markets on Sundays and weekdays.²⁶

One interviewee also mentioned the importance of feeling accepted and finding culturally appropriate food, stating, “I guess I always got the feeling that Harris Teeter is more upscale for [me]...I sort of feel more comfortable at Glebe Market than Harris Teeter...it’s an ethnic mom-and-pop store rather than a huge supermarket.”

Finally, most interviewees mentioned convenience and ability to travel as important factors. Overall, 78 percent of survey respondents had access to a car, and 80 percent reported driving during their most recent food shopping trip. The other most common modes of transportation to get to the grocery store included walking (39 percent) and getting a ride from someone else (18 percent). Respondents reported that the average time to get to the store on their most recent trip was 28 minutes round trip.

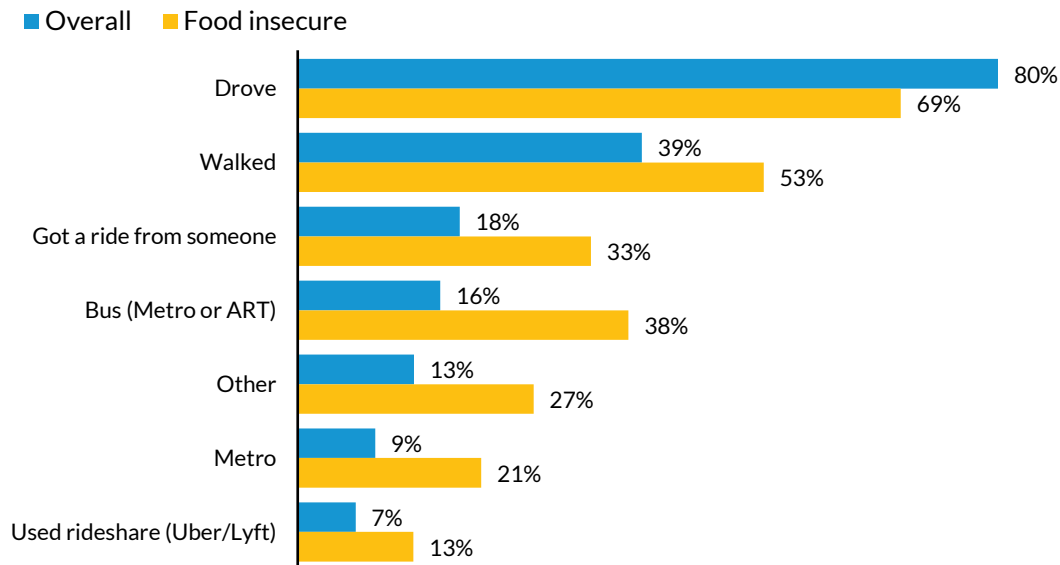
However, some residents struggled with transportation barriers when purchasing groceries if they did not have a car. Only 64 percent of those who were experiencing food insecurity had a car. Those experiencing food insecurity were more likely to walk (53 percent), get a ride from someone (33 percent), take the metro or bus (21 percent), or use a rideshare (13 percent) (figure 8).

We saw in some cases that whether residents experiencing food insecurity were able to buy certain foods or secure transportation depended on the time of month. One respondent who received disability and lived alone stated, “For me, if I have transit, if I have the money to get the bus, I use the bus, and around the first week of the month, I might catch a cab and do a lot more shopping, more than just the basics.”

Travel costs were also an important factor, even for those with a car. An interviewee cited the cost of gas, noting, “We look for whatever is closest to our house, since going very far is an additional cost—the cost of gasoline.”²⁷ This was before the 2022 spike in gas prices, which likely put additional pressure on household transportation budgets.

FIGURE 8

Modes of Transportation Used by Survey Respondents on Their Most Recent Shopping Trip



Sources: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Survey responses represent the perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

Notes: “Other” includes community rideshare (e.g., Raitero), taxi, bike, paratransit, and any “other: fill-in” response as sample sizes for these choices were low.

Online grocery services were less commonly used by survey respondents, with 24 percent reporting having some or all of their groceries delivered. But they were valuable for those who needed delivery, such as respondents with mobility restrictions. One resident we interviewed was an elderly woman with a disability. She explained, “I live...three stories up...It’s very difficult for me to navigate the stairs carrying heavy bags. I order online from Giant Foods that’s in this area. Sometimes I may do Aldi with Instacart.” However, those who ordered online noted that fees were difficult to manage. That same interviewee, along with another respondent, mentioned paying more than \$10 in fees.

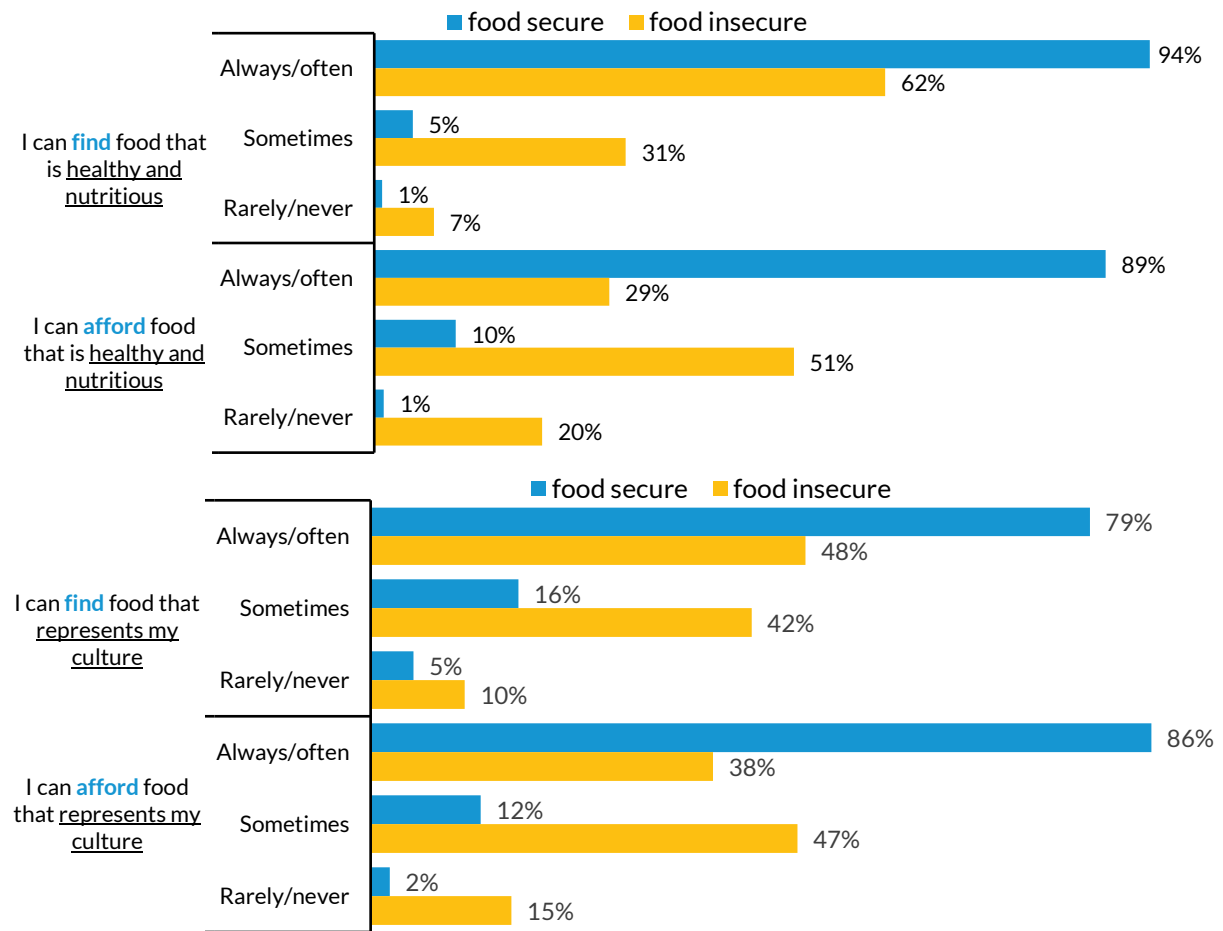
Respondents Experiencing Food Insecurity Had Food Close By, but It Was Unaffordable

Survey results showed that Arlington County residents' ability to get healthy, nutritious, and culturally appropriate food was not necessarily about accessibility but instead about affordability (figure 9). This was especially salient for residents experiencing food insecurity with limited financial resources. Most respondents experiencing food insecurity (62 percent) said that they could always or often **find** food that was healthy and nutritious; however, only about a quarter of them (29 percent) could always or often **afford** healthy and nutritious food, and 1 in 5 (20 percent) said that they could rarely or never afford healthy and nutritious food. In comparison, respondents who were not experiencing food insecurity (from the same four census tracts) were better able to both find *and* afford healthy and nutritious food.

Responses were more mixed on being able to find and afford food that represented residents' cultures. About half of respondents experiencing food insecurity (48 percent) could always or often **find** culturally appropriate food, while only 38 percent could always or often **afford** this food. Respondents who were not experiencing food insecurity were more able to find and afford culturally appropriate foods as well.

FIGURE 9

Ability to Find and Afford Food That Is Healthy Nutritious and Culturally Appropriate, by Food Security Status



Source: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Survey responses represent perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

Note: Data are shown as a percentage of overall population experiencing food insecurity.

Charitable Food

Charitable food sites are resources for community members to access nutritious meals in times of need. Although nonprofits and other organizations distribute free groceries and meals in Arlington County at more than 50 sites, only 1 in 5 are open weekly during nontraditional hours (after 5:00 p.m. or on the weekends). We analyzed access to charitable food sites based on usage rules and travel times and found that most areas of Arlington with elevated food insecurity rates have access to charitable food services. And nearly half of residents who experience food insecurity reported using these resources. However,

residents in the Crystal City area may face challenges reaching these resources based on their geographic location and transportation resources in the county. And sites could offer greater variety, healthfulness, and culturally appropriate food; services in more languages; and delivery to mobility-constrained people to better meet residents' needs. Strengthening the charitable food resources of the county could include expanding free grocery and meal services in the Crystal City area especially for children, offering services during nontraditional hours to reach working households, softening or eliminating referral requirements, improving communication channels for current charitable food users and nonparticipants, and ensuring services meet residents' food and access needs.

Requirements to Receive Charitable Food Assistance in Arlington County

To receive assistance from the Arlington Food Assistance Center (AFAC)—the county's largest charitable food provider—residents must obtain a referral from an Arlington County social service agency, Arlington Public Schools, or various other nonprofit partners. As part of the referral process, the resident must provide a photo ID and proof of address. AFAC referrals last for six months (extended from three months before the pandemic), after which the resident must renew the referral. Residents in need of immediate assistance can be served once before receiving a referral, as long as they provide photo ID and proof of residence.²⁸

AFAC explained that the referral system exists because a family or person in need of food likely are facing additional forms of hardship. By requiring a referral through the DHS, social workers can assess their needs and refer them to additional programming, such as SNAP, WIC, TANF, rental or housing support, child care support, and mental health support services. This system also allows AFAC to collect data to report to donors, the county, and other stakeholders, as well as analyze trends in use. In general, requiring referrals rather than allowing self-attestation of need is uncommon and may present additional hurdles to households that need food. Some populations may be more hesitant to interact with local social service agencies, such as undocumented people or those in mixed-status households, who continue to have fears about public charge (Bernstein et al. 2020). People with lower literacy or limited English proficiency may experience barriers calling and interacting with the DHS on a regular basis to receive referrals. And, depending on the hours of availability, adults with time constraints or who work during the day may not have the ability or bandwidth to connect with social service workers regularly. Thus, requiring referrals inadvertently creates barriers for several populations and may prevent those in need from accessing resources.

Only One in Five Charitable Food Sites Were Highly Accessible

Using data provided by the Arlington County Food Security Task Force, we assessed access to charitable food sites based on proximity, eligibility requirements imposed by sites,²⁹ frequency of permitted use, and when sites were open for service (seasonality, open on weekends and/or after 5:00 p.m. on weekdays). We only included sites within the geographic boundaries of the county. We looked at access and transportation time for all county residents and then for children and seniors. For the analysis focusing on all residents, we excluded summer school feeding sites, because these sites target only children seasonally, though these were included in the child analysis. Based on these criteria, we identified 56 charitable food sites.

Table 5 shows eligibility requirements and frequency of service at the 56 charitable food sites. We find overall that nearly all charitable food sites were open all year, most offered weekly services to residents, and some had no population-related eligibility requirements (other than a referral or an ID). Many sites also provided services in languages other than English, though the vast majority of sites only provided Spanish as an additional language. (In Arlington, the most common non-English language needs are Spanish, Arabic, Amharic, and Mongolian.)³⁰

TABLE 5
Characteristics of Charitable Food Sites

Characteristic	N	Percentage
Total number of sites	56	100%
Eligibility requirements		
Open to all	21	38%
Open to building residents only	8	14%
Requires having SNAP benefits to access food discounts	5	9%
Serves children only	3	5%
Serves older adults only	12	21%
Other access restrictions	2	4%
Times and frequency of service (not mutually exclusive)		
Open all year	48	86%
Open weekly	32	57%
Open weekends	10	18%
Open weekdays after 5:00 p.m.	10	18%
Languages spoken		
Spanish	22	39%
Arabic	5	9%
Vietnamese	1	2%

Source: Information on charitable food site locations was provided by the Arlington County Food Security Task Force. Information on access and time and frequency of services was included in the characteristics of each food site, which was then coded into the categories above.

Note: We excluded restaurants and school feeding sites from this analysis. A charitable food site may fall into more than one of each of these categories.

We evaluated the number of sites available to residents that offered consistent, frequent food supports open to all Arlington residents. Only about 1 in 5 charitable food sites (six sites) offered food resources without clients needing to meet a population-related eligibility requirement, were open all year, and provided weekly food resources. Moreover, even fewer sites were open during weekends and/or after regular business hours (weekdays after 5:00 p.m.). Figure 10 shows the distribution of sites across each dimension, and figure 11 maps the most accessible sites in orange.

FIGURE 10

Access and Frequency of Service of Charitable Food Sites

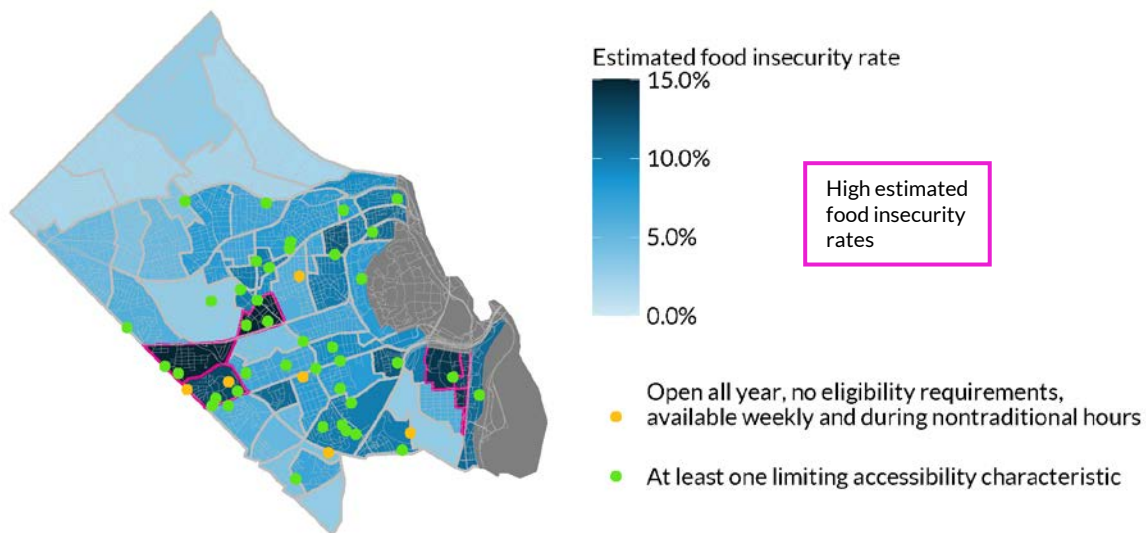


Sources: Information on charitable food site locations was provided by the Arlington County Food Security Task Force. Information on access and time and frequency of services was included in the characteristics of each food site, which was then coded into the categories above.

Notes: We excluded restaurants and school feeding sites from this analysis. This breakdown is mutually exclusive for each site.

FIGURE 11

Charitable Food Sites and Estimated Food Insecurity Rates



Sources: Estimated food insecurity rates were provided by Craig Gunderson, PhD, advisor to this project and lead researcher on “Map the Meal Gap,” Feeding America, accessed March 14, 2022, <https://map.feedingamerica.org/county/2019/overall/virginia/county/arlington>. Data used to estimate the food insecurity rates were sourced from the 2019 American Community Survey five-year estimates. Information on charitable food site locations was provided by the Arlington County Food Security Task Force and geocoded using the Urban Institute’s internal geocoding software.

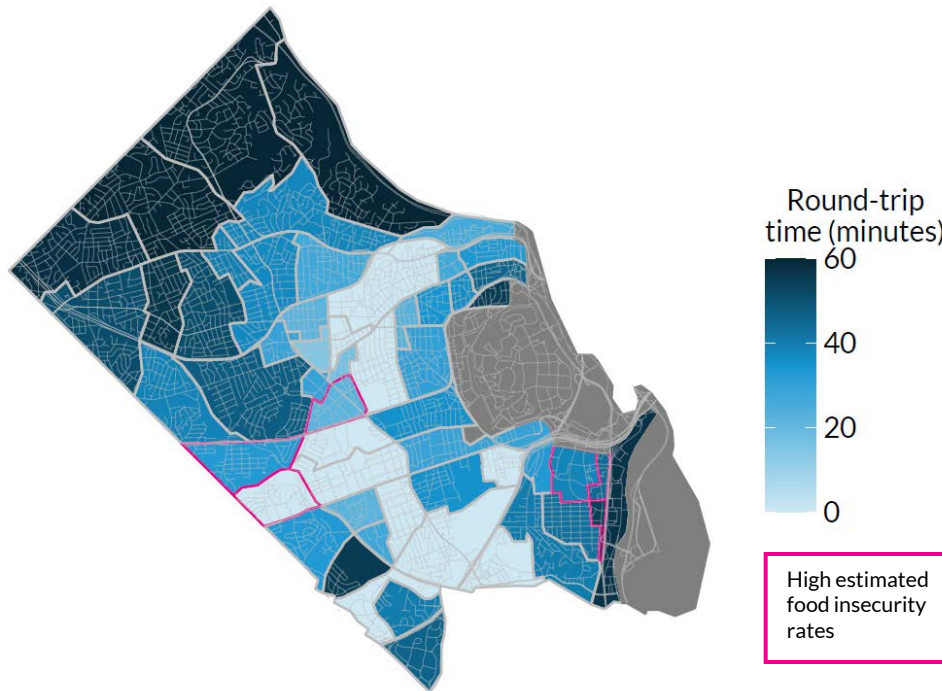
Note: We excluded restaurants and school feeding sites from this analysis.

Areas in Southeast Arlington with High Estimated Food Insecurity Rates Had Lower Access to Charitable Food

Two tracts with high estimated food insecurity rates in Crystal City in southeast Arlington County could not access a charitable food site that was open all year and had no population-related eligibility requirements within a 40-minute round trip via public transit travel time or weighted travel time (figure 12).

FIGURE 12

Two Tracts with High Estimated Food Insecurity Rates Have Low Access to Open Charitable Food Sites via Transit

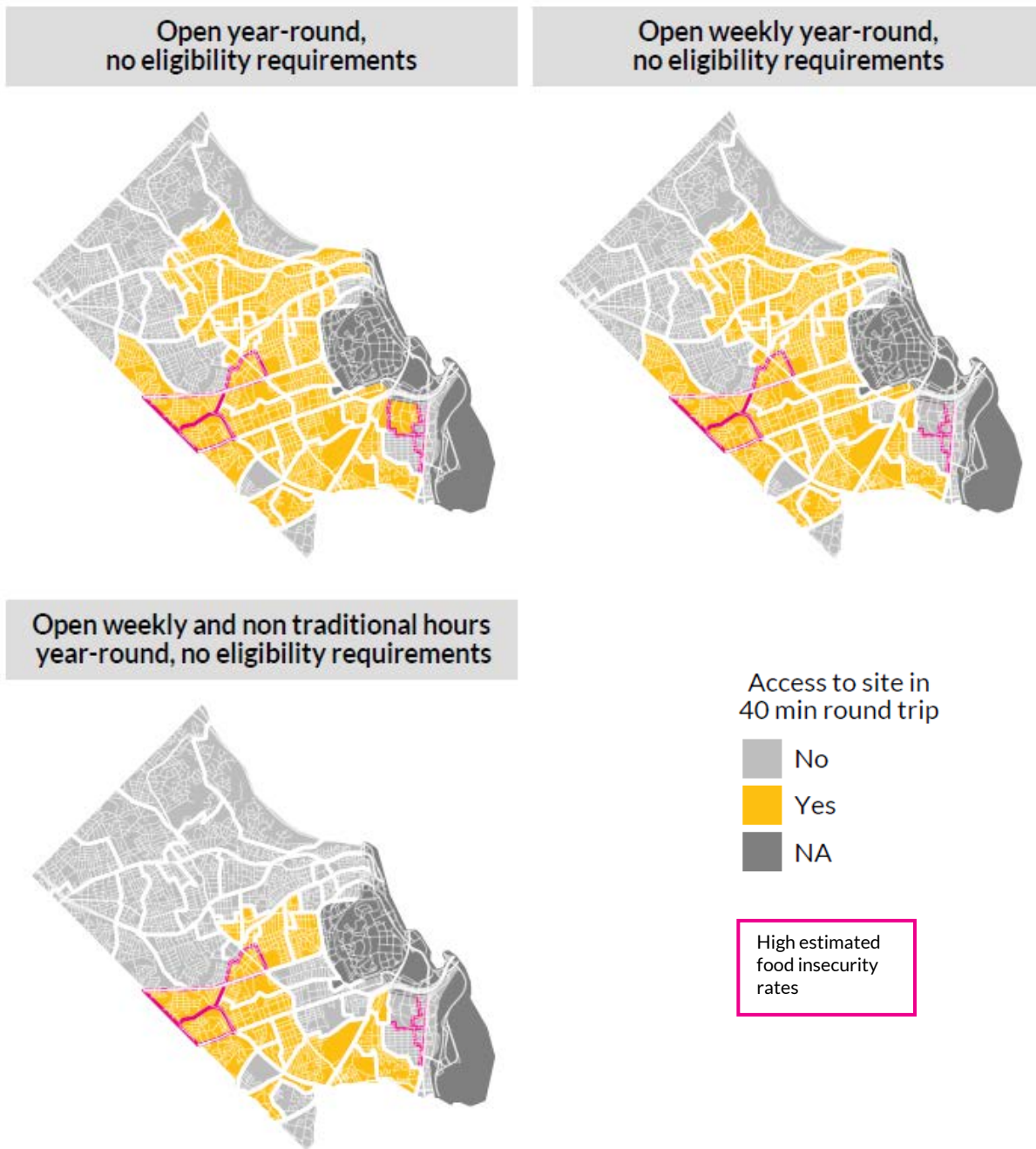


Source: Authors' calculations using 2015–19 American Community Survey demographic data and travel time data calculated using opentripplanner for routing and charitable food location data provided by the Arlington County Food Security Task Force.

If we further limited to charitable food sites that were open weekly or that were open weekly and offered nontraditional hours, the number of tracts in Arlington County with access within a 40-minute round trip dropped considerably, using both public transit travel time and weighted travel time (figure 13). Three tracts with high estimated food insecurity rates in the Pentagon City and Crystal City neighborhoods did not have access to a charitable food site that met these additional characteristics within a 40-minute round trip.

FIGURE 13

Access to Charitable Food Sites Open Weekly and during Nontraditional Hours within 40-Minutes Round Trip via Transit



Source: Authors' calculations using 2015–19 American Community Survey demographic data and travel time data calculated using opentripplanner for routing and charitable food location data provided by the Arlington County Food Security Task Force.

Impressions of Charitable Food Were Generally Positive among Those Who Used These Services

We found that about a quarter (23 percent) of survey respondents accessed any free meal or grocery service in the 30 days before the survey.³¹ Among those that used these services, more than half (53 percent) had gone more than once in the past month, and almost 1 in 4 (23 percent) had gone to more than one location (table 6). This illustrates that some households are relying on charitable food for regular needs throughout the month and combining services when necessary.

TABLE 6
Use of Charitable Food among Survey Respondents

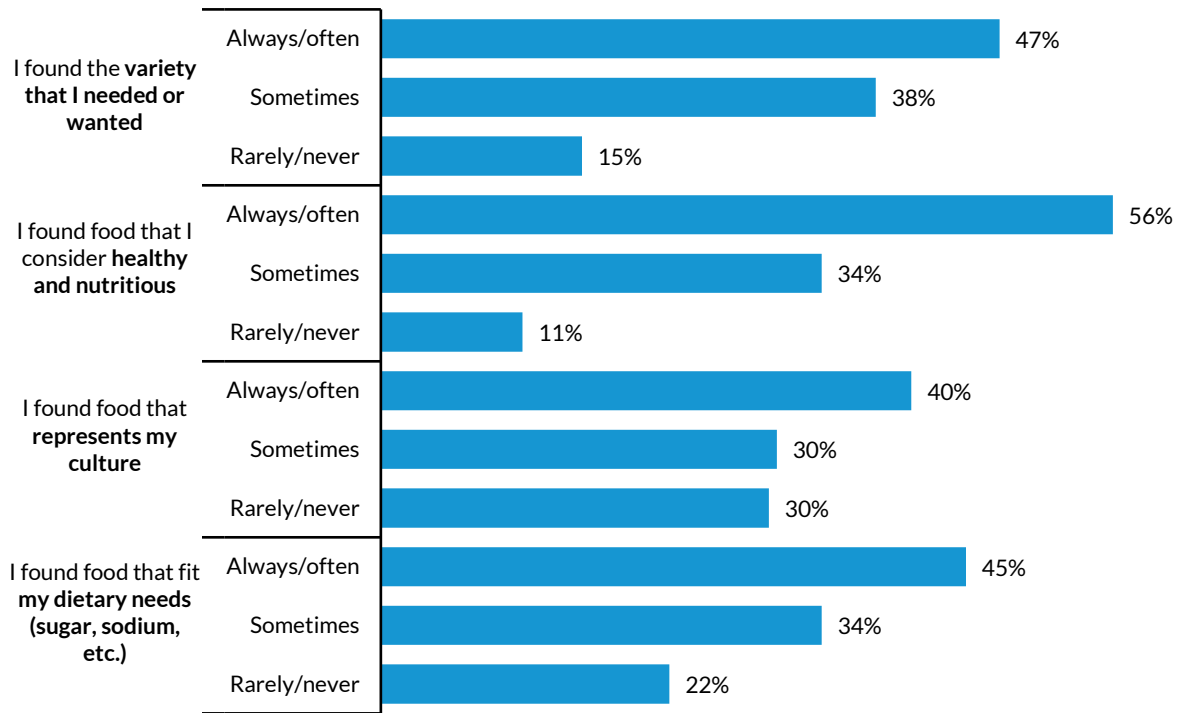
	Percentage
Accessed free meals/groceries in the past 30 days	23%
Frequency of accessing free meals/groceries, among those who used services (N = 168)	
Once	48%
2–3 times	30%
4+ times	23%
Number of locations accessed, among those who used services more than once (N = 88)	
1 location	69%
2–3 locations	28%

Source: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Survey responses represent perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

Surveyed respondents who did access these services were generally able to find the variety of foods that they needed or wanted and food they considered healthy and nutritious. They reported being less able to find culturally appropriate food and food that fit their dietary needs. As shown in figure 14, only 15 percent of respondents reported they were rarely or never able to find the variety they wanted, and only 11 percent said they were unable to find food that they considered healthy and nutritious. However, about 1 in 3 (30 percent) reported they were unable to find food that represented their culture, and more than 1 in 5 (22 percent) were unable to find food that fit their dietary needs (e.g., low sodium foods or low sugar foods). These findings may point to a need for greater attention to the types and variety of foods offered, beyond health and nutrition considerations.

FIGURE 14

Perceptions on Quality of Food Available at Free Meal or Grocery Services among Survey Respondents Who Reported Using Services



Source: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Survey responses represent perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

Note: N = 172 for total surveyed respondents who accessed these services in the 30 days prior.

Several interviewees who used charitable food services made positive remarks. One Spanish-speaking interviewee, a mother living with two children, really appreciated being able to get food and diapers weekly, stating,

It brings me joy because there are always volunteers who are helping those of us who need to feed our children. Because if they didn't give us a little help, we would be suffering a little more, I believe.³²

Some Households Experiencing Food Insecurity Were Not Accessing Charitable Food Services

Among the total population of survey respondents experiencing food insecurity, only about half (52 percent) had recently used free meal or grocery services.³³ Thus, these services could reach more households in need. We found that among those who did not use these resources, 3 in 5 (60 percent) were not aware of where to go in the community, and almost a quarter of those who said they were

unaware (23 percent) were experiencing food insecurity. However, when asked in interviews, most residents who were unaware felt confident they could look up the information online if they needed it. Other reasons for not using charitable food services appear in table 7.

TABLE 7

Awareness of Resources in the Community and Reasons for Not Using Them, among Those Who Reported Not Accessing Free Meals or Groceries in the Past 30 Days

	Percentage
Aware of where to go in the community for free meals or groceries	40%
Reasons for not using food resources, among those aware of resources (N = 229)	
I don't need these services	80%
They don't offer the foods I want	16%
I don't want to receive charity	13%
I feel uncomfortable or embarrassed	11%
The hours don't work for me	10%
The locations are hard to get to	9%
I am worried that my information will be shared with other agencies or officials	7%
I cannot visit due to the identification or paperwork	2%

Source: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Survey responses represent perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

Note: N = 581 for total surveyed respondents who did not access these services in the 30 days prior.

We learned from interviews that pride was one reason for not accessing services. One respondent who talked extensively about food hardship during the height of the pandemic, explained,

I think I'm like everybody else. We tend to be proud. In fact, that would be probably my last resort because I just believe in, I guess, pulling yourself up by your bootstraps. I wouldn't want to do that, but I do know where the resources are if I had to do that.

Another interviewee reported using a program where the local grocery store distributed leftover produce to the apartment complex. However, when asked why she did not use other services in the community, she said that felt like she needed it less than others, stating,

I think I'd be pretty open to it. I mean sometimes, especially when you live alone, it's nice to have a little extra...I mean it's nice to sometimes be able to open your cabinet and not be like, "oh, crap. There's nothing there." It would be nice to have that sometimes.

A few interviewees reported some barriers to using the services. One single adult receiving disability support and SNAP used to go to a charitable food site in the past but stopped because their referral expired. Another interviewee mentioned a similar barrier, stating, "I think they are giving. Everybody's nice to me. It's just hard to keep—their card expires quickly, like every month or so." We clarified with the Arlington County Food Security Task Force that the cards for that provider expired every three months before the pandemic and six months following the start of the pandemic, but this

respondent had a perception that it was more frequent. Requiring a referral may also create an added layer of stigma for those not accessing free meals or groceries but in need, especially for those who cite pride as a reason for not using services (Martinchek et al., forthcoming). See the “Requirements to Receive Charitable Food Assistance in Arlington County” section for more information.

Finally, mobility and transportation were reported as barriers to accessing services. One interviewee living with her daughter preferred to use a service that was further away because she found it to be more organized, but she reported not having enough money for the bus. Another interviewee with a disability reported, “I have to catch two buses to the AFAC [Arlington Food Assistance Center] that’s...off of Four Mile Run...There’s one, also, around the corner from me...Like I said, I have a bad back and illnesses. It’s just too much for me to get down there. I just do it the best I can.” She suggested delivery as an option, stating,

I wish that maybe AFAC, for senior citizens and disability people, that they delivered or help us get to the places...There’s probably too many of us. It might be too much—asking too much.

But that same respondent also gave the county a lot of credit for the support they do offer:

I think Arlington is just really good at what they do. I even get coupons for the Arlington Farmers Market, where I can get a certain amount of fresh fruits and vegetables for free...overall, I have to give them a good grade for what they do.

Residents Would Prefer Information Online, by Text Message, or in a Flyer

As summarized in table 8, survey respondents most preferred getting information about food resources on a website (26 percent). The next most preferred methods were via text message and a flyer on the door or in the mail (both 17 percent) and learning through word of mouth (10 percent).

TABLE 8

Preferred Methods of Receiving Information about Food Resources among Survey Respondents

	Percentage
Website	26%
Do not want information	19%
Text	17%
Flyer on the door or in the mail	17%
Word of mouth	10%
Flyer in posted in location they frequent	8%
Email	2%
Other	2%

Source: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Survey responses represent perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

Notes: Email was not listed as an option in the survey. The percentage is based on those who wrote this in as an “other” response.

About 2 in 5 respondents (41 percent) who wanted information about food resources indicated that they faced challenges learning about them. More than one-third (36 percent) of survey respondents who wanted the information did not know where to find it (table 9), and more than half of respondents experiencing food insecurity (53 percent) said they did not know where to find information.

TABLE 9

Barriers to Learning about Food Resources among Survey Respondents

	Overall	Experiencing food insecurity
I don't know where to find information	36%	53%
Information is not in my language	12%	25%
I don't have reliable internet service	9%	23%
I don't have a device to access the internet	8%	18%
Other	4%	11%

Sources: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Survey responses represent the perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

Notes: Respondents who did not select “I don't want information” in the prior question about preferred methods of receiving information (N = 588) were asked about these barriers. Respondents could select more than one option.

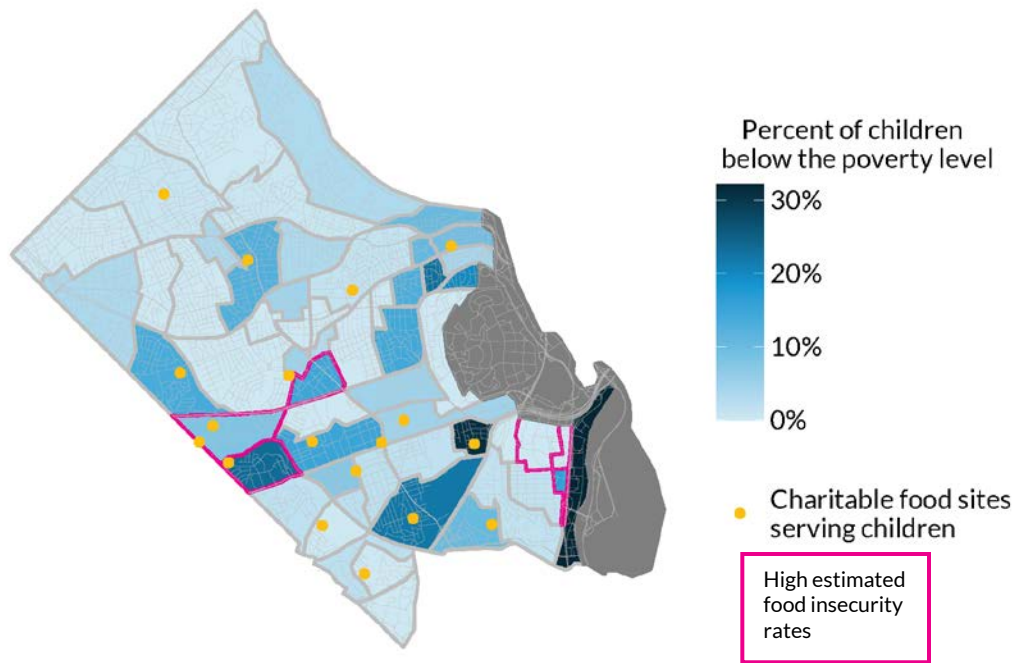
Children and Older Adults Have Access to Charitable Food Sites but Better Targeting for Children is Needed

Some sites focused their efforts on serving specific populations. We identified charitable food sites serving children younger than age 18 and adults ages 65 and older and assessed the locations of these sites relative to the density of population for each group.

We identified nineteen sites serving only children younger than age 18, including sites that serve only children in nonsummer months and child summer food sites (figure 15). Most of the charitable food sites targeting children were not located close to tracts with high densities of children living in households with incomes below the federal poverty level. As shown in figure 16, tracts with high child poverty rates north of Fort Meyer and in the area near the DCA International Airport in southeast Arlington had longer travel times than other tracts with high child poverty rates. One of the six tracts with the highest rate of child poverty cannot access a charitable food site targeting children within 40 minutes round trip (figure 15).

FIGURE 15

Charitable Food Sites Serving Children Younger Than Age 18 and Child Poverty Rates

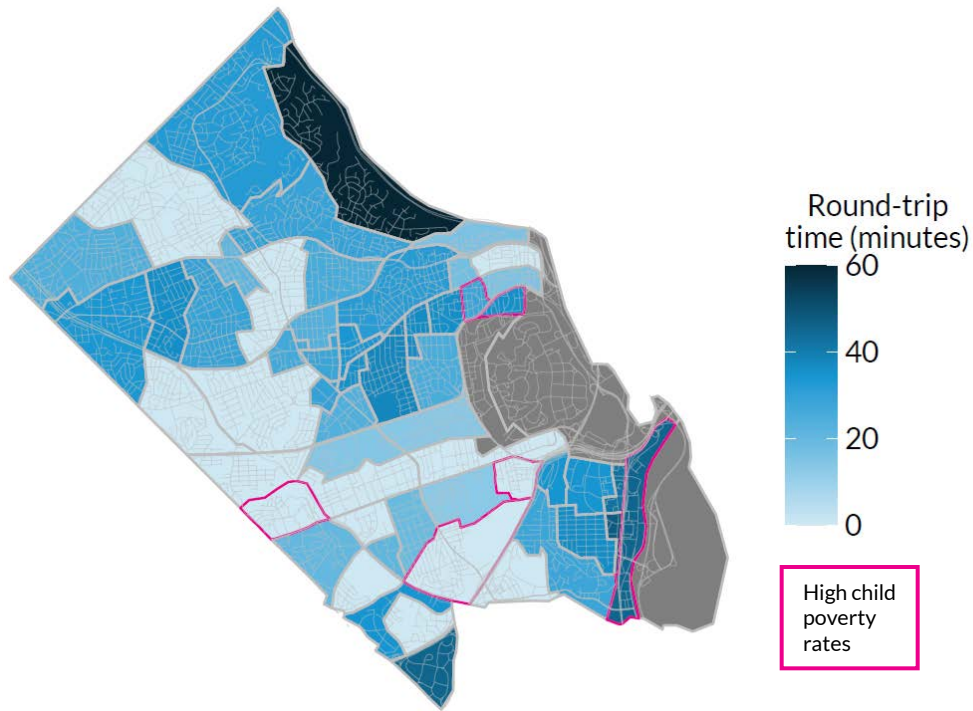


Sources: The number of children younger than age 18 living in households with incomes below the federal poverty level was sourced from the 2019 American Community Survey five-year estimates. Information on charitable food site location was provided by the Arlington County Food Security Task Force and geocoded using the Urban Institute’s internal geocoding software.

Note: We include sites that only serve children, including summer school feeding sites.

FIGURE 16

Weighted Travel Time to Child-Serving Charitable Food Sites and Tracts with High Rates of Child Poverty



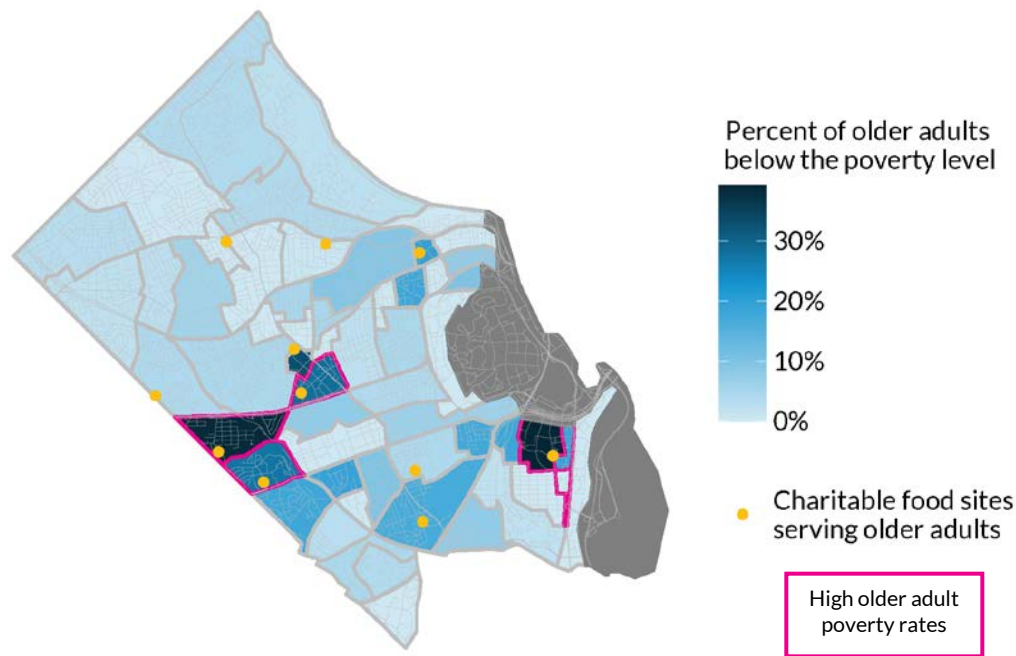
Sources: Authors' calculations using 2015–19 American Community Survey demographic data on the number of children younger than age 18 living in households with incomes below the federal poverty level were sourced from the 2019 American Community Survey five-year estimates. Information on charitable food site locations was provided by the Arlington County Food Security Task Force and geocoded using the Urban Institute's internal geocoding software. Travel time data were calculated using opentripplanner for routing and charitable food location data.

Note: We include sites that only serve older adults.

Twelve sites offered services exclusively to older adults (ages 65 and older), many of which specifically served living facilities for retired adults (figure 17). All six tracts with the highest rates of seniors living in households with incomes below the federal poverty level had at least one charitable food site serving older adults exclusively within the tract.

FIGURE 17

Charitable Food Sites Serving Adults Ages 65 and Older



Sources: Authors' calculations using 2015–19 American Community Survey demographic data on the number of adults ages 65 and older living in households with incomes below the federal poverty level were sourced from the 2019 American Community Survey five-year estimates. Information on charitable food site location was provided by the Arlington County Food Security Task Force and geocoded using the Urban Institute's internal geocoding software. Travel time data were calculated using opentripplanner for routing and charitable food location data.

Note: We include sites that only serve older adults.

Racial Equity in Food Insecurity and Access

Many elements of food access vary across racial and ethnic groups within the county. We broke down each element of the analysis by race and ethnicity to identify differences. Additional services targeted to Black, Hispanic/Latinx, and Asian residents could be expanded in communities with many residents who identify as part of each racial/ethnic group. Specifically, we found that Asian people living in households with incomes below the poverty level had to travel the furthest to access charitable food resources. Expanding access to charitable food sites in the Crystal City area, which had a relatively large concentration of Asian residents with low incomes and few charitable food sites, could address this access disparity.

Asian Households with Low Incomes Had the Lowest Charitable Food Access

To examine racial disparities in transportation access to charitable food sites, we compared the average travel time to year-round charitable food sites that were open weekly and did not have population-related eligibility restrictions across race or ethnicity groups. We focused on residents in each racial/ethnic group with incomes below the federal poverty level to roughly approximate need for charitable food. Table 10 shows the racial/ethnic distribution of people below the poverty level in Arlington County.

TABLE 10

Racial/Ethnic Distribution of People with Incomes Below the Federal Poverty Level in Arlington

	Count	Percent of Total County Population	Percent of Total Racial/ Ethnic Group Population
Asian	2,955	1.28%	12.33%
Black	2,698	1.17%	12.63%
Hispanic/Latinx	3,805	1.65%	10.46%
White	7,482	3.25%	4.48%

Source: Authors' calculations using 2015–19 American Community Survey demographic data

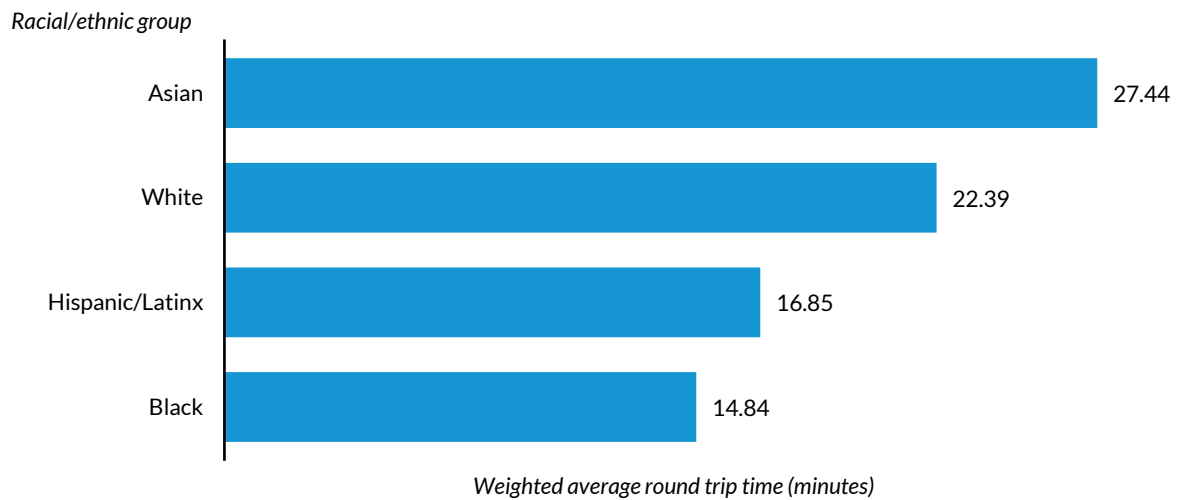
Notes: Total county population is the total population in the county for whom poverty status could be determined (n=230,287)

We calculated the weighted average travel time for each race or ethnicity group (see the appendix for more detail).

We found that, on average, Asian and white people in households below the poverty level faced longer weighted travel times (figure 18). We also broadened this analysis to include all charitable food sites open year-round and without eligibility restrictions (removing the weekly requirement) and found that the gap in average travel times between Asian and white populations and Hispanic/Latinx and Black populations widened by a few minutes, but the overall pattern remained consistent.

FIGURE 18

Asian and White People below the Poverty Level Faced Longer Average Travel Times to Charitable Food Sites



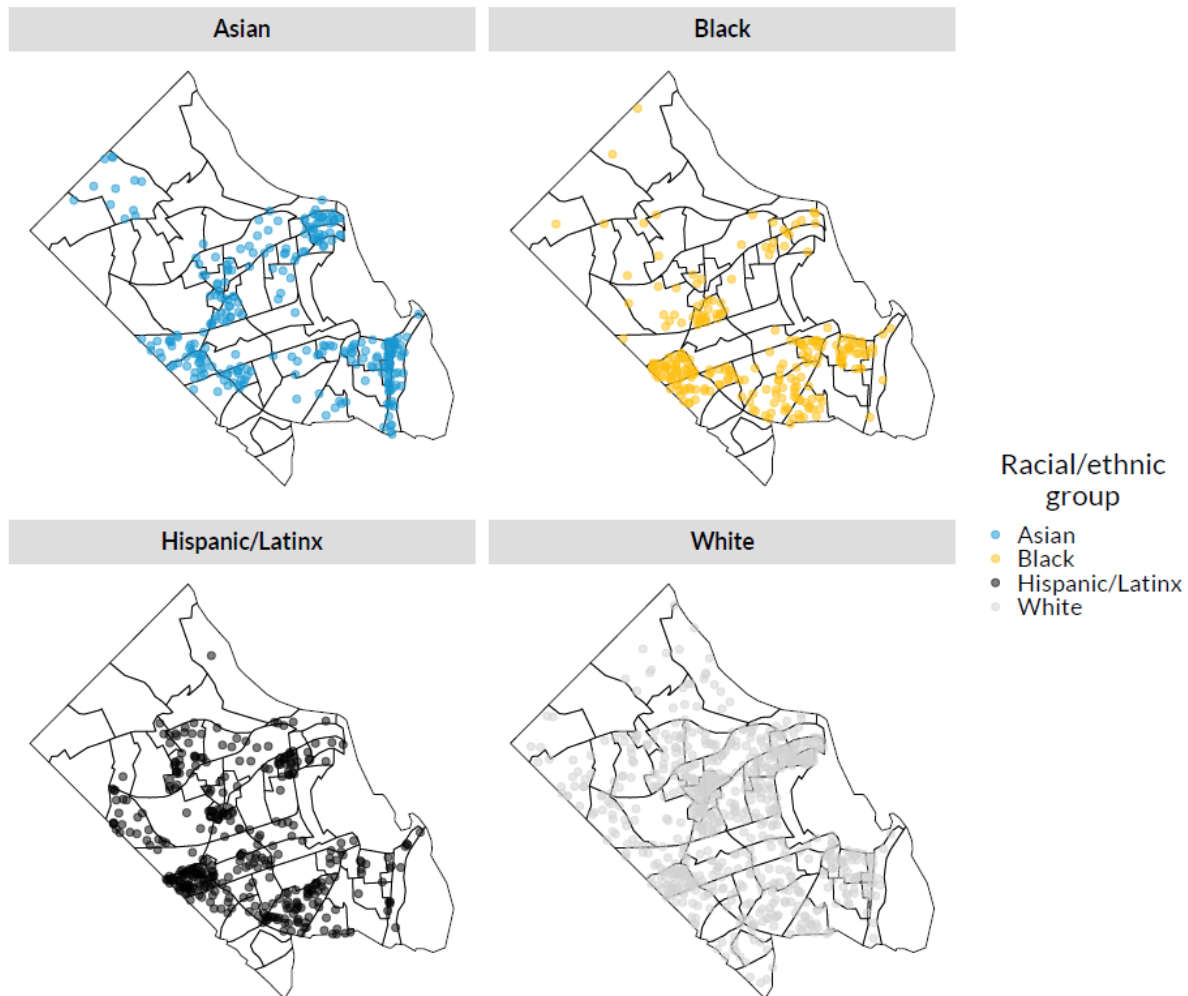
Source: Authors' calculations using 2015–19 American Community Survey demographic data and travel time data calculated using opentripplanner for routing and charitable food location data provided by the Arlington County Food Security Task Force.

Notes: The racial/ethnic groups here are not mutually exclusive. For example, the Black group includes people who identify as Black and Hispanic/Latinx as well as Black and non-Hispanic/Latinx.

Black and Hispanic/Latinx residents living in households with incomes below the federal poverty level were geographically concentrated in tracts with shorter travel times to charitable food sites that are open at least weekly and have no population-related eligibility requirements (figures 18 and 19). By contrast, the Asian population living in households with incomes below the federal poverty level were highly concentrated in tracts in east and southeast Arlington County with longer travel times to charitable food. The Crystal City area was particularly notable for having a large population of Asian people with incomes below the poverty level and long travel times to charitable food sites. The white population in Arlington with incomes below the poverty level was spread throughout the county, including in some tracts in north Arlington with longer travel times to charitable food sites (see figure 16 on page 33 for the average travel time to charitable food sites).

FIGURE 19

Asian, Black, and Hispanic/Latinx Populations below the Poverty Level Were Geographically Concentrated



Source: Simulated dot density map using 2015–19 American Community Survey demographic data.

Notes: The racial/ethnic groups here are not mutually exclusive. For example, the Black group includes people who identify as Black and Hispanic/Latinx as well as Black and non-Hispanic/Latinx.

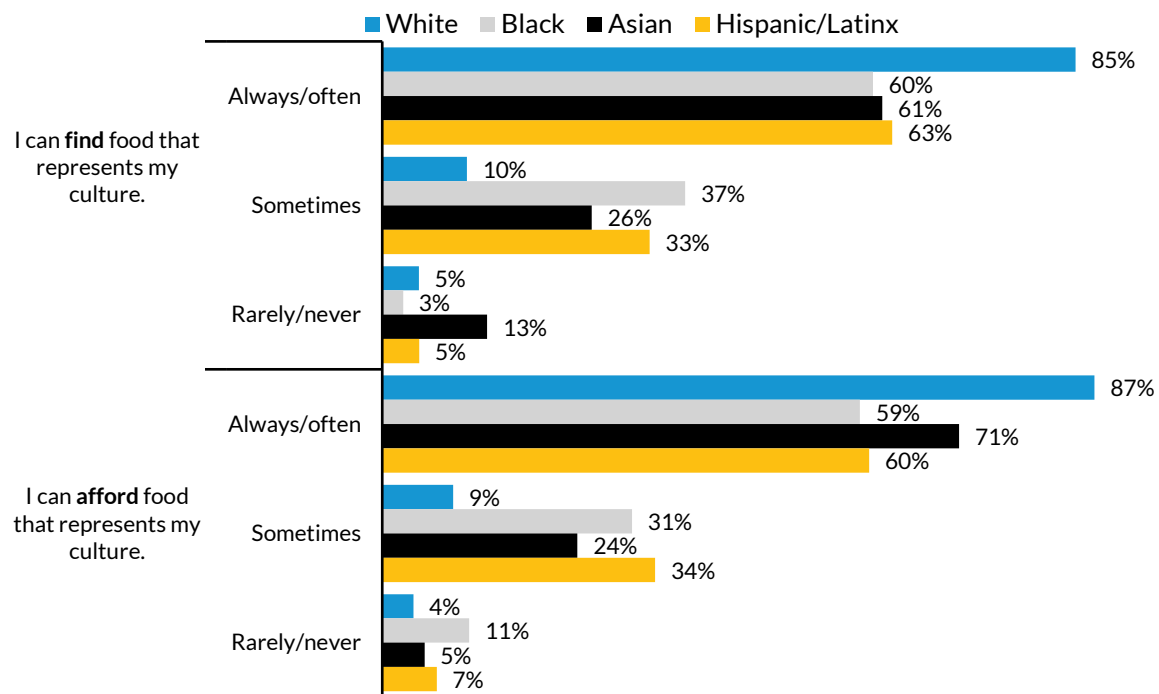
Asian Residents Had a Difficult Time Finding Food That Represented Their Culture, and Black Residents Had a Difficult Time Affording It

We found earlier that the ability to both find and afford culturally appropriate food at retail stores was difficult across survey respondents. However, the trends differed across racial/ethnic groups. Most white respondents were able to both find (85 percent) and afford (87 percent) food that represented their culture always or often. However, fewer Black (60 percent), Asian (61 percent), and

Hispanic/Latinx (63 percent) respondents were able to find food that represented their culture as frequently. Being able to find culturally appropriate food was hardest for Asian residents, as 13 percent could rarely or never find food that represented their culture. Affordability of culturally appropriate food was most difficult for Black respondents, as 11 percent could rarely or never afford culturally appropriate food.

FIGURE 20

Ability to Find and Afford Food That Is Culturally Appropriate, by Race/Ethnicity



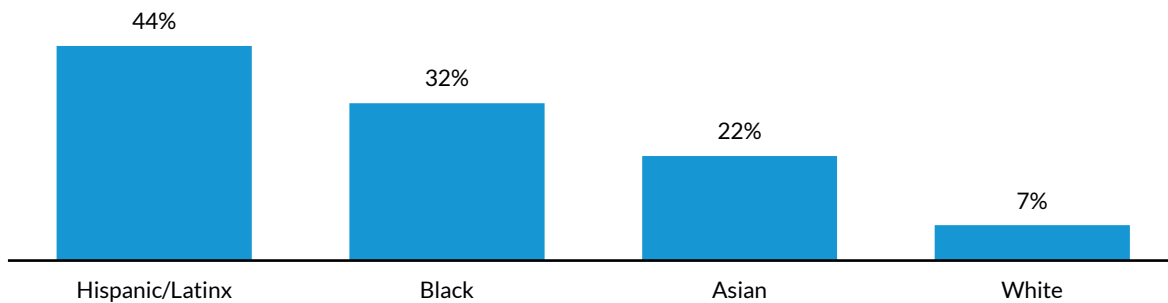
Source: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Survey responses represent perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

Note: “Other” not represented because of limited sample size.

Among all survey respondents, larger shares of Hispanic/Latinx (44 percent) and Black (32 percent) respondents reported accessing free meals or groceries in the 30 days before the survey, a higher rate than Asian (22 percent) and white (7 percent) respondents (figure 21). Although this is useful to capture the demographics of residents who currently use the charitable food system, it does not demonstrate disparities in access to charitable food services, as the need for such services may differ among racial/ethnic groups.

FIGURE 21

Use of Free Meal or Grocery Services in the Past 30 Days, by Race/Ethnicity



Source: Survey results from the Urban Institute food security survey, fielded November 3–24, 2021. Survey responses represent perspectives of residents in four surveyed census tracts (1020.03, 1021, 1022, and 1033).

Notes: “Other” not represented because of limited sample size. Denominator is total respondents from each racial/ethnic group; Hispanic/Latinx: N = 199; Black: N = 77; Asian: N = 102; white: N = 289.

Although the sample size did not allow us to examine ability to access culturally appropriate food from free meal or grocery sites among racial/ethnic groups, the findings above show that as larger shares of Hispanic/Latinx and Black residents are using services, it is important to consider the types of foods available.

Future Opportunities

This report points to various ways that Arlington County can build on its strengths and pursue investments to improve food security and access for some of its most vulnerable residents. The county could explore targeted investments in the retail and charitable food environments to improve food security in communities that face high food insecurity rates.

Strengthening Access to the Retail Food Environment

Most Arlington residents could access retail stores within 40 minutes of roundtrip travel time. This indicates that geographic proximity was not the largest barrier to expanding access to purchased foods. Resident interviews and surveys suggested that the cost of traveling to purchase groceries and the cost of online orders were more salient barriers, especially for those using SNAP benefits.

Arlington County could address these concerns by **incentivizing the development of low-cost grocers** that can provide residents with accessible, affordable, and culturally appropriate foods. Half of Arlington residents experiencing food insecurity meet their needs without turning to free groceries and

meals and could benefit from access to affordable purchased groceries. This may include addressing zoning and site development barriers, providing financial incentives, and offering technical support so they could accept SNAP benefits. In Pennsylvania, the Fresh Food Financing Initiative encouraged public-private partnerships that encouraged grocery store development through loans and other funding from the state. This model has been replicated in other states, including California and New Jersey (CDC 2014).

The county can also expand retail access to residents in need by providing **gas cards or subsidized fares for public transportation**. Most residents used cars to travel to get groceries, so a hybrid approach may fit more residents' existing transportation use. As gas prices continue to rise, additional financial support for households to subsidize the costs of traveling to the grocery store would be a valuable support. Local pantries and service providers in other localities have provided gas cards for residents.³⁴

SNAP benefits are a crucial support for eligible households experiencing food insecurity. However, in Arlington County, not all eligible households rely on SNAP.³⁵ The county could explore **expanding its SNAP outreach services to reach potentially eligible households** and connect them to benefits. Volunteers, case managers, and other providers could help eligible residents complete their SNAP applications in locations that residents already visit. For households experiencing food insecurity who are not eligible for SNAP benefits, the county could **explore providing gift cards to grocers that offer culturally appropriate food options**. This will allow households to access financial supports to secure food that meets their needs.

Additionally, as the SNAP online ordering pilot has expanded across the US, a growing number of SNAP beneficiaries have taken advantage of the option to have groceries delivered.³⁶ This may be especially useful for residents with mobility restrictions or those who face challenges in purchasing their own groceries. While SNAP covers the cost of food purchasing, online orders often assess costly fees that fall to beneficiaries to cover themselves (Hahn et al. 2020). Although we know of no existing local initiatives, Arlington County could pursue a **program to offset the fees associated with SNAP online orders or work with retailers to waive these fees for customers who pay with SNAP benefits**. In addition, local service providers could also provide access to computers to help residents shop for groceries and schedule deliveries.

Expanding and Improving Charitable Food Services in Arlington

Arlington County offered more than 50 charitable food sites where its residents could access free meals or groceries. Although many of these services were geographically close to residents, Arlington County

could strengthen services so they meet households' cultural needs and expand to locations that would help address unmet needs.

The Crystal City neighborhood warrants greater attention from charitable food resources; it does not have access to a charitable food site within 40 minutes round trip, though it appears from the data to have unmet need. Arlington County could **partner with current community providers or develop food distribution sites accessible to residents living in Crystal City**. In particular, charitable food sites that serve children may meet crucial unmet needs in this area. While there are not high concentrations of children in Crystal City and the area near the DCA International Airport, a relatively large share of children in this area live in poverty. Sites that specifically serve children would help address this gap in services. It would also be important for the county to track how needs in that area evolve (and where residents with low incomes relocate) when the new Amazon headquarters opens, which will likely put further pressure on housing and other costs.

Arlington could consider **adding or expanding delivery options for free groceries and meals to residents**. Survey respondents and interviewees with mobility restrictions indicated that getting to charitable food sites could be challenging and time intensive. Community organizations in other localities have developed innovative new ways to deliver free groceries and meals to residents, including leveraging existing delivery routes from Amazon, UPS, and FedEx, and postal routes for more shelf-stable items. For example, the Northern Illinois Food Bank uses DoorDash to connect residents to free meals and groceries, including fresh foods like produce, meat, and dairy.

Arlington could consider reducing barriers to residents seeking charitable food services. Some interviewees indicated that referral requirements limited their ability to secure free groceries and meals. Arlington could consider **removing or softening referral requirements for charitable sites and communicating these changes to residents**. While these referral requirements are potentially useful in getting residents connected to other services and enable providers to collect data for reporting to the County and donors, some households may not feel comfortable interfacing with government agencies before accessing charitable food resources. Some charitable food providers in other areas reduced the data collected on clients and removed enrollment processes during the pandemic and reported that neighbors felt more comfortable accessing these sites and appreciated the privacy (Martinchek et al., forthcoming). This may be especially important for immigrants, who are frequently more hesitant to interact with government services and systems (Bernstein et al. 2020).

Additionally, charitable food sites in Arlington were overwhelmingly open only during daytime hours. Research on the charitable food network has indicated that hours of operation can be a barrier

for residents who would like to access charitable food services but are unable to because of work or child care demands (Waxman et al. 2019). Arlington could consider **shifting or expanding the hours of operation for charitable food sites to include more evening and weekend hours.**

Since late 2021, the price of food has increased and placed additional pressure on household budgets.³⁷ Interviewees reported that purchasing meat and protein in particular has become increasingly cost-prohibitive. Residents have coped by substituting with lower-cost options, like beans, or eating less food. Arlington County's **charitable food providers could consider offering greater portions of protein and meat** for households who may not be able to afford these at the grocery store. **They could also consider offering protein boxes to households who do not otherwise meet income requirements for regular charitable food use but who may still struggle with rising food prices.**

Arlington County could also pursue strategies to improve communication with residents by **enhancing language access and strengthening online tools for locating charitable food resources.** Residents who did not use free groceries or meals sites but who indicated a need for such resources indicated they would overwhelmingly search for this information on the internet. **Arlington could pursue efforts to improve usability of web pages** that share resources on charitable food in both web and mobile formats; ensure that web searches lead residents to valid information; and ensure information is clear, shared in multiple languages, includes details on paperwork or other information needed to access food, and is up to date with the correct dates, times, and locations of distributions. Relatedly, **language access could be expanded in printed materials and for the staff or volunteers who provide direct services to residents.** In Arlington, the largest non-English language needs are for Spanish, Arabic, Amharic, and Mongolian.³⁸ These strategies could ensure that Arlington residents get the information they need in easily understood ways, strengthening the ways residents get connected to resources.

Developing an Equitable Food System

Arlington County could take several key steps to close equity gaps in food access and security for Black, Hispanic/Latinx, and Asian (specifically Mongolian, Indian, Bangladeshi, Chinese, Japanese, and Pakistani) residents who are disproportionately affected by food insecurity

Across the county, Asian communities with low incomes experienced the lowest access to charitable food sites. Arlington County could **partner with existing organizations serving Asian residents to improve services for those with low incomes.** These partnerships will inform areas where charitable food services could better meet the needs of Asian residents, especially among specific

nationalities. The most common Asian countries of origin in Arlington County are Mongolia, India, Bangladesh, China, Japan, and Pakistan.³⁹ This approach could also help improve culturally appropriate messaging and other outreach to improve take-up among households in need.

Many Asian residents with low incomes were concentrated in Crystal City, which had limited access to charitable food sites. Arlington County could **consider expanding free meals and groceries in the Crystal City community, especially with greater attention to Asian residents' unique needs**, including stocking culturally appropriate foods, offering services in a range of languages and with culturally appropriate outreach strategies, and selecting locations close or convenient to services residents already use.

Further, **targeted outreach and services for Black, Hispanic/Latinx, and Asian residents** throughout the county could ensure that residents in need are aware of services they can use to meet their needs. Black, Hispanic/Latinx, and Asian residents are concentrated in different neighborhoods across the county, so services located in their communities may increase their access to free groceries and meals. These groups' disproportionately high rates of food insecurity are tied to decades of policy decisions (Odoms-Young 2018).

Bolstering Residents' Financial and Food Security

Food security cannot be separated from broader financial well-being. Arlington County could enhance residents' financial and food security by providing key supports to households facing financial distress. Many Arlington residents reported struggling to pay rent and household bills. The county does offer financial assistance for utility bills if the resident meets specific eligibility requirements.⁴⁰ The county could enhance these efforts and **provide additional utility bill relief by halting shutoffs, easing late payment fees, expanding eligibility to existing services, and providing deferred payment plans**. The county could also expand outreach for the Low Income Home Energy Assistance Program (LIHEAP), which provides assistance for home energy bills, energy crises, weatherization, and energy-related minor home repairs.

In addition, **housing affordability and rent stabilization interventions** would likely make a large difference in households' abilities to afford other critical expenditures like food, especially with the pressures that will only heighten as the new Amazon headquarters opens in the coming years. Proactive interventions like targeted investments in low-income housing units, providing incentives for private sector development of housing at different affordability levels, and bolstering protections for renters

and homeowners at risk of displacement could help residents ease trade-offs between food and finances and provide greater stability (Austin Turner et al. 2019).

The county could also explore providing **direct cash payments** to residents to provide them with additional financial resources to meet their needs. These types of programs have built momentum across many jurisdictions during the pandemic, including Washington, DC. In Arlington County, the Arlington Community Foundation is supporting “Arlington’s Guarantee,” an unconditional cash transfer pilot that provides \$500 dollar each month for 18 months to 200 working households with low incomes.⁴¹ These supports could improve residents’ mental health and lower food insecurity rates (Bogle et al. 2022). This could also enable residents to create a savings buffer for when future emergencies arise as fewer recipients pull from their savings to meet their regular needs (Bogle et al. 2022). While direct cash payment programs require investment, they may be particularly helpful in meeting Arlington residents’ needs, as Arlington is a high-cost area home to service workers with lower wages. These programs are well-situated to address racial disparities in financial distress during economic crises (Bogle et al. 2022). Arlington County is already in process of testing cash transfer programs in the county, and the reach and impact of the program could be expanded and strengthened through additional investments. Overall, these efforts could help residents achieve financial stability and security and improve their food security.

To help residents achieve greater financial security over the long term, the county could explore **implementing matched savings programs** toward asset purchases such as higher education, business capitalization, and home ownership (Azzolini, McKernan, and Martinchek 2020). These can be valuable to help residents buffer against future financial hardships.

Food insecurity is a household economic condition rooted in low incomes, lack of assets, and limited protection against economic shocks. To address food insecurity in the long term, Arlington County will need to help residents with low resources build economic resilience.

Further Study

Arlington County has demonstrated a visible investment in improving the food landscape in the county through the establishment of the Arlington County Food Security Task Force and commission of this report, but the work is not done. As cost pressures increase in the county and the economic and demographic landscape further evolves, especially with the establishment of Amazon’s new headquarters in the National Landing/Crystal City area, it will be valuable to regularly update this analysis to keep up with changing needs. In addition, because the tract-level food security rates were

estimated using 2019 data, an updated analysis could examine food needs during the pandemic, and a broader survey of food security across the entire county—not only four census tracts—would provide a more accurate point-in-time measure of real food needs. Finally, any new interventions that are implemented should be evaluated to understand if they improved participant well-being, for whom, and why. This can help inform future efforts and build a body of evidence about what works to improve food security for Arlington residents.

Appendix. Detailed Methodology

To achieve the study goals and answer these research questions, we developed a mixed-methods approach that incorporates existing administrative geographic data, as well as new data collected from the community. These components are woven together throughout the report to present a comprehensive picture of food insecurity in Arlington County. The four components of our methodology include the following:

- a geographic analysis that examines the distribution of food insecurity and available resources, such as Supplemental Nutrition Assistance Program (SNAP) retailers and charitable food
- a transportation analysis that uses transit time data to evaluate access to SNAP retailers and charitable food sites via public and private transportation
- a survey fielded to residents of Arlington County to understand on-the-ground experiences
- follow-up in-depth interviews with a sample of survey respondents

Estimating Census Tract–Level Food Insecurity in Arlington County

Arlington County contains 59 census tracts,⁴² though two tracts do not have a living county residence because they cover the Arlington Cemetery and DCA International Airport. We adopted Feeding America’s Map the Meal Gap methodology⁴³ to estimate the state’s food insecurity rate, which we then use to estimate food insecurity rates in Arlington County for each populated census tract. The estimates are based on determinants of food insecurity identified in the literature, including the rate of households with incomes below the federal poverty level,⁴⁴ the unemployment rate, median income, homeownership rates, share of the population affected by a disability, and the share of Black and Hispanic/Latinx populations. To check the robustness of the estimated food insecurity rates, we also examined and modeled food insecurity without an indicator for homeownership.⁴⁵

The food insecurity estimates were calculated in a two-step process. Because food insecurity is measured at the state level using the Current Population Survey, the model identified the weight of the different determinants relative to the state-level food insecurity rate. The determinants were weighted by fitting a regression estimating food insecurity at the state level using a fixed-effects model (controlling for year and state fixed effects), with weights for the state’s population. The second step

was to calculate the estimated food insecurity rate at the census-tract level based on the measured level of the determining factors and the coefficients developed in the first step.

Table A.1 shows descriptive statistics for estimated food insecurity rates and the determinants of food insecurity for Virginia and the census tracts in Arlington County.

TABLE A.1
State and County Estimated Food Insecurity Rates and Determinants

	Virginia	Arlington County
Food insecurity		
Share experiencing food insecurity	9%	8%
Factors affecting food insecurity rates		
Share of Black residents	19%	9%
Share of Hispanic/Latinx residents	9%	16%
Share of residents who are homeowners	66%	43%
Unemployment rate	5%	3%
Share of people in HHs with incomes below the federal poverty level	11%	7%
Share of residents with a disability	12%	6%
Median HH income	\$74,222.00	\$119,755.00

Sources: Data on demographics, unemployment, income, and poverty were collected using the US Census Bureau's American Community Survey 2015–19 five-year estimates. Estimated food insecurity rates were provided by Craig Gunderson, PhD, advisor to this project and lead researcher on “Map the Meal Gap,” Feeding America, accessed March 14, 2022, <https://map.feedingamerica.org/county/2019/overall/virginia/county/arlington>. Data used to estimate food insecurity were sourced from the 2019 American Community Survey five-year estimates.

Throughout the county, estimated food insecurity rates ranged from 2 percent to 15 percent of the population. The average and median estimated rate of food insecurity was 8 percent. Table A.2 describes the estimated food insecurity rates and the determinants at the tract level.

TABLE A.2
Description of Estimated Food Insecurity Rates and Determinants by Census Tract

	Mean	Min	Max
Estimated food insecurity rates			
Share of people experiencing food insecurity	8%	2%	15%
Share of people experiencing marginal food security	12%	3%	24%
Determinants			
Share of Black residents	10%	1%	38%
Share of Hispanic/Latinx residents	15%	4%	43%
Share of residents who are homeowners	46%	0%	96%
Unemployment rate	3%	0%	7%
Share of households with incomes below the federal poverty level	6%	0%	18%
Share of residents with a disability	6%	1%	16%
Median income	\$129,887	\$37,332	\$250,001

Sources: Estimated food insecurity rates and marginal food insecurity rates were provided by Craig Gunderson, PhD, advisor to this project and lead researcher on “Map the Meal Gap,” Feeding America, accessed March 14, 2022,

<https://map.feedingamerica.org/county/2019/overall/virginia/county/arlington>. Data used to estimate the food insecurity were sourced from the 2019 American Community Survey five-year estimates. Marginal food security describes households that experience anxiety over food sufficiency or shortages of food in the house. Read more: “Definitions of Food Security,” US Department of Agriculture, Economic Research Service, September 8, 2021, <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u-s/definitions-of-food-security/>.

Notes: We exclude 2 of the 59 tracts defined in the 2019 ACS estimates. Tract 510139801 is largely covered by the Arlington Cemetery and tract 510139802 by the DCA International Airport.

Limitations of Food Insecurity Analysis

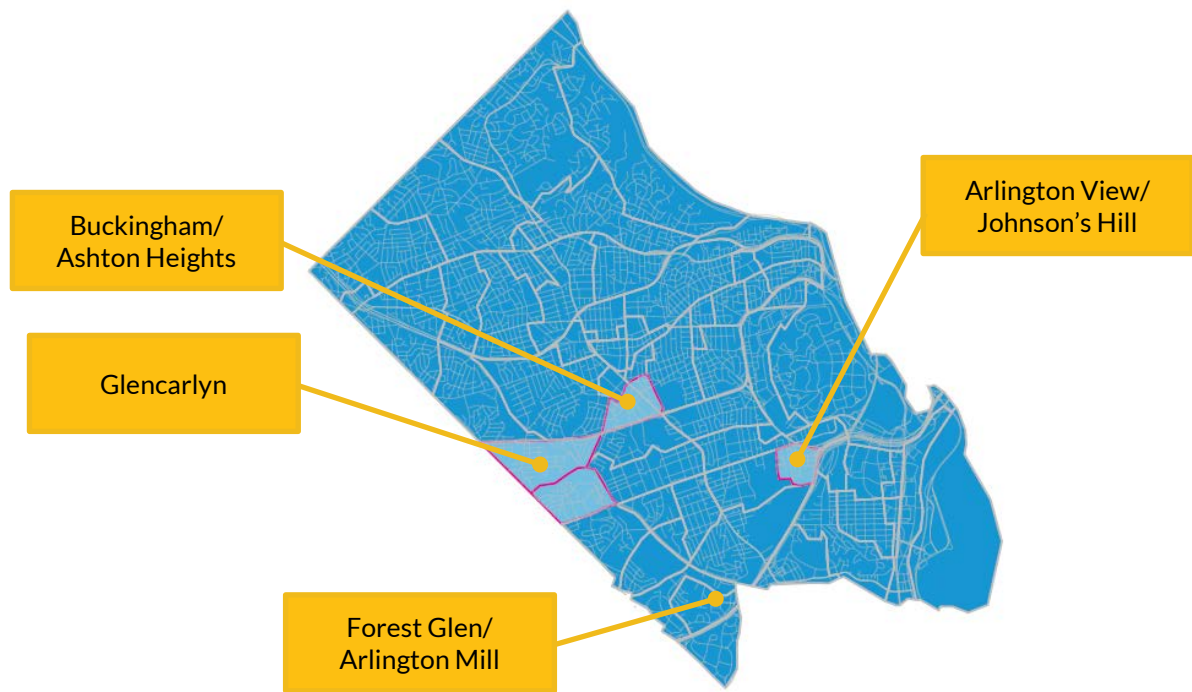
The two-step process of estimating these rates means that the ways these determining factors relate to food insecurity at the state level were assumed to apply at the local level. This assumption may not hold if determinants of food insecurity and actual food insecurity rates relate differently in unique localities. This is why the estimated food insecurity rates for small geographic levels can be informative, but they are not the same as the food insecurity rates measured through a representative survey at the community level.

Survey

In addition to the geographic analysis approaches described above, we aimed to anchor our work in the perspectives of community members to develop a more robust understanding of food access needs. We conducted a survey with a sample of Arlington residents to learn more about community members’ experience with food access and food security, the resources they use, their financial pressures and trade-offs, barriers to accessing resources, and how existing programs meet their needs. Surveying the entire county was cost prohibitive, so we targeted residents living in census tracts with high rates of food insecurity within the county and high shares of the population who identify as Black or Hispanic/Latinx. These indicators were chosen to ensure that the survey focused on households that likely experienced barriers to food access. We administered the survey to residents in four census tracts: 1020.03, 1021, 1022, and 1033, represented in figure A.1.

FIGURE A.1

Map of Surveyed Census Tracts in Arlington County



Source: Generated using 2015–2019 American Community Survey data.

Note: Surveyed census tracts were 1020.03, 1021, 1022, and 1033, and are outlined in pink.

To create our list of contacts for the survey, we mapped these census tracts to mail delivery routes and used the US Postal Service’s Every Door Direct Mail option to deliver to all residences on those routes. This was a cost-effective way to ensure all residents in the target areas received the survey invitation. There were 9,143 addresses in the postal delivery routes that aligned with the target census tracts. We aimed for a 5 to 10 percent response rate (or roughly 450 to 900 responses), which is slightly higher than typical response rate expectations for a survey link distributed through the mail.

The survey was developed through an iterative process with the Arlington County Food Security Task Force members. Questions were originally developed based on our proposed research questions and sourced from a variety of validated questionnaires including census questions, Behavior Risk Factor Surveillance System, National Health Interview Survey, Current Population Survey and CPS-Food Security Supplement, US Department of Agriculture National Household Food Acquisition and Purchase Survey, the American Driving Survey, and the Well Being and Basic Needs Survey. We incorporated feedback from the Arlington County Food Security Task Force and ultimately developed a

10-minute survey capturing key demographics, retail food access and use, charitable food access and use, and financial hardships.

The survey was administered through Qualtrics (a secure online survey host that provides browser- and mobile-friendly formats), and residents were invited to participate in the survey via postcards—mailed on October 27, November 3, and November 11, 2021. The postcards contained key information about the survey in English or Spanish, the link to access the survey online, a scannable QR code, and a toll-free number that our bilingual team supervised to respond to survey or gift card issues. On average, across the four census tracts, 10 percent of residents are Asian (see table 1), so it is possible our survey missed some residents that did not speak English or Spanish. Residents were offered a \$10 gift card for completing the survey. Exposure to the survey predominantly came via postcard, but our team also developed a flyer for members of the Arlington County Food Security Task Force to post in community locations. However, these flyers did not contain the survey link, to ensure only those who were in the sample and received the postcard completed the survey. Arlington County Food Security Task Force members and other volunteers were also trained on in-person survey enumeration to assist residents with taking the survey.

Ultimately, we analyzed responses from 802 households in the four census tracts, which was a 9 percent response rate. This is typically high for a mail-survey. We removed duplicate respondents to ensure we only analyzed one response per household. All cleaning and analysis underwent a code review to ensure accuracy and quality. All statistical tests performed throughout the report in relation to survey data are two-tailed *t*-tests. Our survey responses were largely representative of the census tracts we intended to sample. Among the addresses we were able to look at, the majority fell into either the target census tracts or a neighboring tract. Our survey sample approximated census tract, as mail routes do not perfectly align.⁴⁶

Interviews

We conducted 16 in-depth interviews with survey respondents to gather an on-the-ground picture of how food insecurity manifests in daily living and contextualize the results from the survey and geographic analyses (tables A.3 and A.4). Specifically, we asked about strategies people used to meet their food budgets, how they interact with retail food, financial pressures and coping strategies, trade-offs among food and other household costs, barriers to accessing food assistance, and their experience with food insecurity. We used a purposive sampling strategy to choose interview respondents, which helped ensure our responses were varied and representative even though the number of informants

was small. We selected interviewees from a pool of 132 survey respondents who consented to be interviewed and reported facing food insecurity. Among these, we sought diversity in reported race/ethnicity and zip code. We used zip code as a proxy variable to ensure not all of our interviews originated from the same area of Arlington, because census tract identifiers were not connected to the survey respondents until the analysis stage.

TABLE A.3
Sampling Matrix for In-Depth Interviews

	Respondents' Reported Race/Ethnicity			
	White (N = 26)	Black (N = 29)	Asian, NAAN, Other/Mixed (N = 19)	Hispanic/Latinx (N = 58)
Zip code	N = 9	N = 8	N = 7	N = 13
22203	Interviewed: 1	Interviewed: 2	Interviewed: 1	Interviewed: 2
Zip code	N = 17	N = 21	N = 12	N = 35
22204	Interviewed: 1	Interviewed: 4	Interviewed: 1	Interviewed: 4

Source: Survey results from Urban Institute food security survey, fielded November 3–24, 2021.

Note: NAAN = Native American or Alaska Native. Other/Mixed includes respondents who reported “Other” or more than once race on the survey.

Interviews were approximately 25 minutes long and conducted in December 2021 and January 2022 via phone in both Spanish and English. Respondents received a \$25 gift card for completing the survey. All interviews were recorded, transcribed, and analyzed for key themes.

TABLE A.4
Demographics of Interviewees

Group	Number of interviewees
Household type	
Single adult	9
Multiperson	7
Any household employment	89%
Homeownership	38%
Race/ethnicity	
White	2
Hispanic/Latinx	6
Black	6
Asian	2
Accessed free meals/groceries in the past 30 days	
Yes	7
No	9
SNAP receipt in the past 30 days	
Yes	5
No	11
Yearly average income	\$32,092 (range: \$4,680–\$103,000)

Source: Survey results from Urban Institute food security survey, fielded November 3–24, 2021.

This appendix documents the technical steps to analyze access to food resources via transportation in this report. This methodology builds on the methodology developed by an Urban Institute research team (including authors of this report) for the “Unequal Commute” feature.⁴⁷ This appendix draws on that feature technical appendix,⁴⁸ which outlines the details of the original methodology.

Quantitative Mapping and Transportation Analysis

We measured food access by calculating the travel time to reach different SNAP retailers and charitable food sites for each tract in Arlington County. We used the open-source routing software OpenTripPlanner (OTP)⁴⁹ via the `opentripplanner`⁵⁰ R package to calculate travel time by car and public transportation between pairs of population-weighted centroids for census tracts located in Arlington County. We also included destination tracts in adjacent counties because the nearest food site for some Arlington residents is across county lines. We used that travel time to approximate the travel time for all people in the starting tract to all food sites located in the ending tract. In addition to the two tracts without a permanent population covering the Arlington Cemetery and DCA International Airport mentioned above, we also excluded the census tract covering the Joint Base Myer-Henderson Hall because its roads are not publicly accessible.

For each tract in the county, we calculated two different access metrics for each type of food site: (1) the time to access the closest food site by public transit and (2) the time to access the closest food site as a weighted combination of car and public transit time. For the second metric, we calculated the weighted average by multiplying the car travel time by the share of adults in the tract who commute to work via car from the 2015–19 American Community Survey and adding the public transit time multiplied by the share of adults in the tract who do not commute to work via car. This weighted metric gives car time more weight in tracts where more people commute via car and public transit time and more weight in tracts where more people commute via transit. We measured travel times for weekday after-work travel, taking the average of three different travel times around September 15, 2021, at 5:30 p.m. to produce a more consistent estimate of travel time. We accounted for rush hour traffic by multiplying the drive times by a traffic multiplier calculated from the 2019 INRIX Traffic Scorecard⁵¹ for the Washington, DC, area. We also accounted for wait time experienced by the traveler before beginning their public transit trip (e.g., time between the desired start time and when the next bus departs) in the final calculated travel time. For more details on how we calculated food access, please see the “Analytic Process” section below.

Data Sources

SNAP RETAILERS

We collected SNAP retailers from the US Department of Agriculture, Food and Nutrition Service, SNAP retailer database. The data were last collected in November 2021. We included data from Herndon, Loudon, and Fairfax Counties and the City of Alexandria in addition to SNAP retailers in Arlington County for the transportation analysis. This was done to account for the fact that some people on the border of Arlington County may travel outside the county to purchase foodstuffs.

We also limited the inclusion of SNAP retailers to exclude pharmacies such as Walgreens, CVS, RiteAid, gas and service stations, and convenience stores such as 7-Eleven, Wawa, and so on. We only included in this analysis supermarkets and grocery stores, ethnic markets and stores, and farmers markets. We included these stores within the SNAP retailers because of the array of produce and foodstuffs provided.

CHARITABLE FOOD SITES

The data on charitable food sites were provided by the Arlington County Food Security Task Force, last updated in November 2021. We have two groups of charitable food sites. The general analysis included charitable food sites that provide non-temporary supports and are not summer school feeding sites. This resulted in a total of 56 sites identified across the county. When we looked at sites focusing on children, we added summer school feeding sites to the analysis. In both, we excluded sites that were located outside the county.

Transportation Data

We used the R package *opentripplanner*,⁵² which is an interface with the open-source routing software OpenTripPlanner (OTP)⁵³ to calculate travel time between pairs of start and end points. OTP requires two main data inputs: transit data in the General Transit Feed Specification (GTFS) format and road grid data from OpenStreetMap (OSM). OTP uses these two data inputs to create a model of the transportation system (called a graph) that it uses to identify the fastest route between start and end points. One limitation of both OSM data and OTP routing is that neither accounts for traffic conditions when calculating drive time. To address this limitation, we applied a traffic adjustment for car trips taken at peak times, explained in the “traffic data” section.

ROAD GRID DATA

We obtained data for the road grid from OpenStreetMap, a free, open-source global map that includes detailed information about roadways and walkways. We first downloaded the OpenStreetMap file for the southern United States (which includes DC and Virginia) from the GeoFabrik Download Server, which hosts OSM extracts that are updated daily. We then clipped the file to a bounding box that fully contains the geographic area under consideration.

TRANSIT DATA

Data on public transit were sourced from the Transitland feed registry, which aggregates feeds from transit agencies in more than 50 countries. We obtained data for all public transit agencies⁵⁴ that operate in Arlington County and the surrounding counties.

TRAFFIC DATA

We used INRIX's 2019 Global Traffic Scorecard to incorporate traffic times and congestion data in our analysis of trips by car. INRIX used anonymized observed trip data to identify the busiest commuting routes and areas in metro regions across the world. INRIX then created multiple metrics related to congestion using travel times to and from these identified commuting areas, including peak speed (average miles per hour [MPH] during the most congested portion of morning and afternoon commutes), off-peak speed (average MPH during the least congested point of the commute), and free flow (fastest travel time over 24 hours). We multiplied car trips taken during peak hours by the ratio of the off-peak speed (32 miles per hour) and the peak speed (18 miles per hour) for the Washington, DC, metro area to account for traffic slowdowns. We used the 2019 data because the 2020 data are anomalous because of the steep reduction of commuter traffic during the COVID-19 pandemic.

Demographic and Geographic Data

DEMOGRAPHIC CHARACTERISTICS

Data for demographic information were taken from 2015–19 ACS five-year estimates at the census tract-level. We obtained data on the population below the poverty level by age—both for children (younger than age 18) and seniors (ages 65 and older)—and by racial/ethnic group. Racial/ethnic groups were defined as Asian (both Hispanic/Latinx and non-Hispanic/Latinx); Black or African American (both Hispanic/Latinx and non-Hispanic/Latinx); Hispanic/Latinx; and white (both Hispanic/Latinx and non-Hispanic/Latinx). We obtained this information using the R tidycensus package, which also includes the geographic boundaries of Arlington County and its census tracts. To account for car ownership and

commute method, we used the share of workers ages 16 and older who travel to work by car, truck, or van from census tract-level 2015–19 ACS five-year estimates, obtained using tidycensus. We also explored using the share of households that own at least one vehicle but found that this value was universally very high and may not reflect consistent access to a car for accessing food.

POPULATION-WEIGHTED CENTROIDS

We used the population-weighted centroid for each tract as the start or end point for trips from or to that tract. We used the populated-weighted centroid so our start or end point better reflects where the population is concentrated in the tract. We obtained the populated-weighted centroid data from the Missouri Census Data Center Geocorr 2014:⁵⁵ Geographic Correspondence Engine. The data center used 2010 Census population estimates at the census tract-level to identify each population-weighted centroid.

Analytic Process

DEFINE GEOGRAPHIC SCOPE AND IDENTIFY START AND END POINTS FOR ROUTING

Our analysis focused on Arlington County, but we realize that people do not necessarily limit themselves by county boundaries when making decisions about accessing retail food. For our analysis of access to retail food providers, we expanded our geographic scope to include retailers in Arlington County, Alexandria City, and Fairfax County. For our analysis of access to charitable food sites, we only considered sites in Arlington County. As described above, we used the population-weighted centroids of Arlington County as our start points for routing and then consider the population-weighted centroids of Arlington County, Alexandria City, and Fairfax County as our end points for routing. We calculated the travel times for all pairs of start and end points that are within 25,000 meters (slightly more than 15 miles) of each other to simplify our analysis.

GATHER ROAD AND TRANSIT DATA AND BUILD GRAPH

Next, we gathered the relevant transit and road grid data required by OpenTripPlanner as described in the data sources section. We used the dimensions of the geographic area identified in step one to clip the OpenStreetMap data for the southern United States to the relevant area for our analysis. We then obtained the GTFS data for all transit agencies in the states included in the geographic area, using the process outlined in the transit data section (see page 2). The GTFS data were split into several component files that together provide the relevant information on the agencies, routes, stops, trips, and stop times that compose a transit system. In rare cases, these files have missing, inconsistent, or

duplicate information that requires cleaning to prevent interference with the graph build or routing analysis. We tried to preserve as much usable data for routing as possible by performing three data-cleaning steps before building the graph:

- **Imputed missing data.** We checked for missing agency data in the agency file and replaced missing fields with a set of default values. We also checked for cases where the final stop time in a given route is missing from the stop-times file. In these cases, we filled the missing data with an interpolated guess for the arrival time and departure time of the final stop based on the time between the preceding stops on the same route. In cases where a route referenced in the stop-times file did not appear in the routes file, we added it to the routes file so OTP could use the stops.
- **Removed invalid data.** We removed values from the stop-times file that are associated with stop IDs that do not appear in the stops file and are thus invalid. As the stops file included the location for each stop, a stop time associated with a stop ID that did not appear in that dataset could not be linked to a geographic location and therefore could not be used in routing.
- **Removed duplicate trips and routes.** We dropped duplicate values in the trips and routes files based on the unique identifiers for trips and routes.

Each of the above fixes occurred very rarely in the transit data we used for this analysis but were necessary to ensure that the graph builds properly. We then used the processed road grid and transit data to build the representation of the transportation network (called a “graph”) that OTP uses for routing.

CALCULATE TRAVEL TIMES AND APPLY ADJUSTMENTS

We used the opentripplanner package to calculate the shortest possible travel time between each set of start and end points via public transit and car travel. OTP offers numerous parameters that can be used to configure routing requests.⁵⁶ We set the following values in our analysis:

- **Number of itineraries.** This parameter controls the number of itineraries returned by OTP. By default, OTP optimizes the route to minimize the travel duration of the trip. We set this parameter to 1, which means we obtained only the itinerary that represented the fastest trip between the start and end points.
- **Wait at beginning factor.** This parameter controls how much less bad waiting at the beginning of the trip is than wait time during transit. We set this value to 0.5 to ensure that the software

did not return trips involving an unreasonable wait time before departure for slight reductions in travel time.

- **Walk reluctance.** This parameter is a multiplier for how bad walking is, compared with being in transit for equal amounts of time. We set this value as 2 to ensure that the software did not return trips with an unreasonable amount of walking, particularly for people who would be transporting food.

We focused our analysis on a weekday rush hour travel time, specifically using September 15, 2021, at 5:30 p.m. as the target time. To reduce lumpiness in our results that may be caused by a traveler barely missing a transit leg at a given departure time, we calculated the public transit travel time at three randomly selected departure times around 5:30 p.m. (5:24 p.m., 5:31 p.m., and 5:35 p.m.) and took the average of the three travel times for each start-end pair. In many cases when using transit, the first leg of the trip departed after the stated departure time—in some cases, considerably after. We calculated a measure of adjusted duration that accounts for this “wait time” at the beginning of the trip. We calculated wait time by finding the number of minutes between the stated departure time and the start time of the first leg (which is typically the start time of walking to the first transit point), multiplying that number by 0.5, and adding that quantity to the trip duration to calculate adjusted duration. We also modified the adjusted duration of car trips for traffic using a traffic multiplier as outlined in the data sources section above. For our analysis, we set an adjusted duration of 0 to access food sites within the starting point tract.

Conduct Food Site Access Analysis

For each tract in Arlington County, we measured the time to reach the closest food site of each type considered by both public transit time and weighted travel time. For the weighted travel time measure, we multiplied the drive time for each tract by the share of adults who reported commuting to work via car on the 2015–19 American Community Survey and added that to the public transit time multiplied by one minus the share of adults commuting via car (i.e., the adults who do not commute via car). We used these measures to assess the geographic access of residents in each tract to different types of food sites.

Conduct Racial Equity Analysis

We also examined racial equity in access to charitable food sites across Arlington County. We restricted our focus to the population in each racial/ethnic group below the federal poverty level as a rough

approximation of likely user population of charitable food. We calculated the weighted average travel time for each racial/ethnic group considering the geographic distribution of each group across census tracts in Arlington County. We used data from the 2015–19 American Community Survey on the number of people below the federal poverty level by racial/ethnic group in each census tract. Notably, the census does not disaggregate these counts by racial/ethnic group. For example, the estimate of Black people below the poverty level includes those who identify as Hispanic/Latinx and Black and those who identify as non-Hispanic/Latinx and Black. Therefore, the Hispanic/Latinx group used in our analysis was not mutually exclusive with the Asian, white, and Black groups. We calculated a weighted average travel time for each racial/ethnic group multiplying the share of the county’s population of the given racial/ethnic group below the poverty level in a given tract by the weighted travel time to the closest charitable food site for that tract and take the sum across all tracts in the county. We conducted this analysis examining both access to charitable food sites open year-round and without eligibility restrictions, as well as for sites that were also open weekly.

Notes

- ¹ “Definitions of Food Security,” US Department of Agriculture (USDA), Economic Research Service (ERS), updated September 8, 2021, <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u-s/definitions-of-food-security/>.
- ² Data collected from Feeding America’s “Map the Meal Gap” data tool, for the year 2019: accessed March 14, 2022, <https://map.feedingamerica.org/county/2019/overall/virginia/county/arlington>.
- ³ The Arlington County Food Security Task Force “is made up of 28 members who represent various stakeholders in Arlington’s food security infrastructure, including non-profit, faith-based, and school-based food providers; population representatives; business partners; and community members.” The Urban research team met regularly with members of the Arlington County Food Security Task Force to discuss research approach, findings, and local community context. For more information about the Arlington County Food Security Task Force, see <https://www.arlingtonva.us/Government/Departments/DHS/Public-Assistance/Food-Security-Task-Force> (accessed March 14, 2022).
- ⁴ USDA ERS, “Food Price Outlook,” last updated February 25, 2022, <https://www.ers.usda.gov/data-products/food-price-outlook/>.
- ⁵ We do not report survey data for Asian, Native American and American Indian, and mixed/other races respondents because of limited sample sizes.
- ⁶ See Rachel Burris, “15 Most Expensive Cities in the US,” Zing! by Quicken Loans, June 9, 2021, <https://www.quickenloans.com/blog/15-most-expensive-cities-in-the-us> and Relator.com <https://www.quickenloans.com/blog/15-most-expensive-cities-in-the-us>; Nicolas Bedo, Danielle Hale, Javier Vivas, “The Amazon Impact: Northern Virginia Two Years After Winning HQ2,” Realtor.com, November 12, 2020, <https://www.realtor.com/research/amazon-hq2-2020-anniversary>.
- ⁷ Data collected from the US Census Bureau’s tool “Quick Facts” tool (accessed March 14, 2022, <https://www.census.gov/quickfacts/arlingtoncountyvirginia>) to estimate the total number of households using the 2019 American Community Survey five-year estimates.
- ⁸ The number of households served by the Arlington Food Assistance Center was collected from the Food Insecurity in Arlington County Request for Proposal, 2021.
- ⁹ See US Department of Agriculture (USDA) Economic Research Service (ERS), “Food Security in the US,” last updated January 19, 2022, <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u-s/>.
- ¹⁰ “Map the Meal Gap,” Feeding America, accessed March 14, 2022, <https://map.feedingamerica.org/county/2019/overall/virginia/county/arlington>.
- ¹¹ According to data from the US Census Bureau, there are 111,887 households in Arlington County, Virginia. Data accessed from the Census Bureau’s 2019 five-year estimates data table DP02, accessed March 21, 2022, <https://data.census.gov/cedsci/table?q=Household%20and%20Family&g=0500000US51013&y=2019&tid=ACSDP1Y2019.DP02>
- ¹² Eric Meredith, “November Is Native American Heritage Month,” Feeding America (blog), November 10, 2020, <https://hungerandhealth.feedingamerica.org/2020/11/november-native-american-heritage-month>.
- ¹³ Steven Brown, “How COVID-19 Is Affecting Black and Latino Families’ Employment and Financial Well-Being,” Urban Wire (blog), May 6, 2020, <https://www.urban.org/urban-wire/how-covid-19-affecting-black-and-latino-families-employment-and-financial-well-being>.

- ¹⁴ Arlington County Food Security Task Force, accessed March 14, 2022, <https://www.arlingtonva.us/Government/Departments/DHS/Public-Assistance/Food-Security-Task-Force>.
- ¹⁵ “Map the Meal Gap,” Feeding America.
- ¹⁶ The rate of households with incomes below the poverty level excludes college students.
- ¹⁷ “Affordable Units,” City of Arlington, accessed March 14, 2022, <https://www.arlingtonva.us/Government/Programs/Housing/Get-Help/Rental-Services/Affordable-Units>.
- ¹⁸ We defined poverty levels based on thresholds set for the contiguous United States, based on the reported household size of the respondent.
- ¹⁹ A renter with low income is defined from our survey data as a nonhomeowner falling within income guidelines set by the Arlington Housing Grants, accessed March 14, 2022, <https://www.arlingtonva.us/Government/Programs/Housing/Get-Help/Rental-Services/Local-Housing-Grants>. Although this is not a perfect representation of renters, as not all nonhomeowners necessarily rent, this is used as a proxy to understand level of need among those who would qualify for rental services based on Arlington guidelines.
- ²⁰ Our estimate of household food insecurity is based on the six-item short form of the US Department of Agriculture’s Household Food Security Survey Module and uses a 30-day reference period. Respondents with two to four affirmative responses are defined as having low household food security, and respondents with five to six affirmative responses are defined as having very low household food security. These groups are jointly defined as experiencing food insecurity. Respondents with one affirmative response are defined as marginally experiencing food insecurity. Affirmative responses include reporting that it was often or sometimes true that the food the household bought did not last, and the household did not have money to get more; it was often or sometimes true that the household could not afford to eat balanced meals; adults in the household ever cut the size of meals or skipped meals because there was not enough money for food; meals were cut or skipped for 3 or more of the past 30 days; the respondent ate less than they felt they should because there was not enough money for food; and the respondent was ever hungry but did not eat because there was not enough money for food.
- ²¹ Andrew Aurand, Dan Emmanuel, Daniel Threet, and Ikra Rafi, “The State of Affordable Housing for Renters with the Lowest Incomes,” *Housing Matters* (blog), February 23, 2022, https://housingmatters.urban.org/research-summary/state-affordable-housing-renters-lowest-incomes?utm_source=%20urban_newsletters&utm_medium=news-HHM&utm_term=HHM.
- ²² White was chosen as the reference group as they are the largest respondent group. The goal of this comparison is not to compare against white respondents as a benchmark of success.
- ²³ “Family Budget Map,” Economic Policy Institute, accessed March 14, 2022, <https://www.epi.org/resources/budget/budget-map/>; Mary Bogle, Emily Bramhall, and Jorge González-Hermoso, “Many Families in Arlington, Virginia, Struggle to Afford Basic Needs. A Flexible Safety Net Can Help,” *Urban–Greater DC* (blog), June 1, 2021, <https://greaterdc.urban.org/blog/many-families-arlington-virginia-struggle-afford-basic-needs-flexible-safety-net-can-help>.
- ²⁴ Original quote in Spanish: “Sí. Hemos reducido la cantidad de comida para ajustar para la renta porque, eso sí, siempre hay que tenerlo.”
- ²⁵ Original quote in Spanish: “Sí, porque, mira, a veces uno tiene que pagar teléfono y todas esas cosas. Es necesario—porque ya no es un lujo andar un teléfono, porque es necesario, digo yo.”
- ²⁶ “Farmers Market Map,” City of Arlington, accessed March 14, 2022, <https://www.arlingtonva.us/Government/Topics/Urban-Agriculture/Farmers-Markets/Farmers-Market-Map>.

- ²⁷ Original quote in Spanish: “Buscamos lo que sea más cercano a nuestro domicilio ya que también ir muy lejos es un coste adicional—el gasto de gasolina.”
- ²⁸ “Get Food,” Arlington Food Assistance Center, accessed March 14, 2022, <https://afac.org/getfood/>.
- ²⁹ Eligibility requirements included sites that served only children or seniors older adults, sites that served residents of a specific building, sites requiring receiving SNAP benefits to receive food resources, and those with other access restrictions (e.g., sites that served only veterans or hospital patients). Some sites only required a referral or identification to access—we did not consider these as eligibility requirements for this analysis.
- ³⁰ “2020–2021 Fall Statistics,” Arlington Public Schools, last updated December 20, 2020, <https://www.apsva.us/wp-content/uploads/2020/12/2020-2021-Fall-Statistics.pdf>.
- ³¹ This was calculated based on whether the respondent checked “yes” for either receiving free groceries or free meals in the 30 days prior.
- ³² Original Spanish quote: “Bueno, me trae alegría porque siempre hay personas voluntarias que le están ayudando a los que necesitamos para alimentar a nuestros hijos. Porque si no nos dieran una ayudadita, estuviéramos sufriendo un poco más, creo yo.”
- ³³ Because of limited sample size, we were not able to present demographics of residents experiencing food insecurity who were not accessing charitable food services.
- ³⁴ Alejandro Alvarez, “Northern Virginia Food Pantry Turns to Gift Cards during Coronavirus Pandemic,” WTOP News, April 21, 2020, <https://wtop.com/prince-william-county/2020/04/northern-virginia-food-pantry-turns-to-gift-cards-during-coronavirus-pandemic/>.
- ³⁵ We attempted to estimate SNAP access rates but encountered data alignment issues that complicated the analysis. Nonetheless, it became clear that there was a gap between SNAP eligibility and access.
- ³⁶ Inmar Intelligence, “The SNAP Online Purchasing Pilot Has Expanded To 48 States - How Will This Impact EBT Cardholders?,” August 16, 2021, <https://www.inmar.com/blog/thought-leadership/snap-online-purchasing-pilot-has-expanded-48-states-how-will-impact-ebt>.
- ³⁷ “Food Price Outlook,” USDA ERS.
- ³⁸ Arlington Public Schools, “2020–2021 Fall Statistics,” last updated December 20, 2020, <https://www.apsva.us/wp-content/uploads/2020/12/2020-2021-Fall-Statistics.pdf>
- ³⁹ “2020–2021 Fall Statistics,” Arlington Public Schools.
- ⁴⁰ “Heating/Cooling Assistance,” Arlington County Food Security Task Force, accessed March 14, 2022, <https://www.arlingtonva.us/Government/Departments/DHS/Public-Assistance/Heating-Cooling-Assistance>.
- ⁴¹ “Arlington’s Guarantee: Unconditional Cash for Families in Need,” Arlington Community Foundation, accessed March 14, 2022, <https://www.arlcf.org/arlingtons-guarantee/>.
- ⁴² According to the US Census Bureau, “Census tracts are small, relatively permanent statistical subdivisions of a county or statistically equivalent entity...Census tracts generally have a population size between 1,200 and 8,000 people, with an optimum size of 4,000 people. A census tract usually covers a contiguous area...Census tract boundaries generally follow visible and identifiable features. They may follow nonvisible legal boundaries, such as minor civil division (MCD) or incorporated place boundaries.” See US Census Bureau, “Glossary,” last updated February 10, 2022, <https://www.census.gov/programs-surveys/geography/about/glossary.html>.
- ⁴³ “Map the Meal Gap,” Feeding America.
- ⁴⁴ The rate of households with incomes below the poverty level excludes college students.

- ⁴⁵ Food insecurity rate estimates are highly impacted by homeownership, because it is a reflection of wealth and assets. However, in some localities, some tracts with high incomes may see lower homeownership rates because of younger populations with higher earnings. Thus, in these communities, income may be more of a relevant factor in determining food insecurity.
- ⁴⁶ We were able to assess Census tract representativeness for 739 out of 804 respondents (as we did not have address data for the remaining). Among these, 70 percent were from the target census tracts; 20 percent were from 1020.03, 12 percent were from 1021, 26 percent were from 1022, and 12 percent were from 1033. Twenty-seven percent of respondents were from bordering census tracts, which was expected given the mail routes could only approximate census tract boundaries. Three percent of respondents were from nonbordering tracts.
- ⁴⁷ Christina Stacy, Alena Stern, Kristin Blagg, Yipeng Su, Eleanor Noble, Macy Rainer, and Richard Ezike, "The Unequal Commute: Examining Inequities in Four Metro Areas' Transportation Systems," Urban Institute, October 6, 2020, <https://www.urban.org/features/unequal-commute>.
- ⁴⁸ Alena Stern, Christina Stacy, Kristin Blagg, Yipeng Su, Eleanor Noble, Macy Rainer, and Richard Ezike, "Access to Opportunity through Equitable Transportation: Technical Appendix," October 2020, https://www.urban.org/sites/default/files/2020/10/01/access_to_opportunity_-_technical_appendix.pdf.
- ⁴⁹ OpenTripPlanner 2, accessed March 14, 2022, <http://docs.opentripplanner.org/en/latest/>.
- ⁵⁰ opentripplanner, accessed March 14, 2022, <https://cran.r-project.org/web/packages/opentripplanner/index.html>.
- ⁵¹ INRIX Traffic Scorecard: "Washington DC," 2019, <https://inrix.com/scorecard-city/?city=Washington%20DC&index=89>.
- ⁵² opentripplanner, accessed March 14, 2022, <https://cran.r-project.org/web/packages/opentripplanner/index.html>.
- ⁵³ OpenTripPlanner 2, accessed March 14, 2022, <http://docs.opentripplanner.org/en/latest/>.
- ⁵⁴ The public transit agencies are Alexandria Transit Company Dash, Fairfax Connector, PTRC, Loudoun County Transit, DC Circulator, DC Streetcar, Prince George County Bus, Montgomery County Ride-On, Washington Metro Area Transit Authority, Bethesda Circulator, and Arlington Transit.
- ⁵⁵ "Geocorr Applications," Missouri Census Data Center, accessed March 14, 2022, <https://mcdc.missouri.edu/applications/geocorr.html>.
- ⁵⁶ "Class RoutingRequest," opentripplanner, accessed March 14, 2022, <http://dev.opentripplanner.org/javadoc/1.3.0/org/opentripplanner/routing/core/RoutingRequest.html>.

References

- Austin Turner, Margery, Leah Hendley, Maya Brennan, Peter Tatian, Kathryn Reynolds, Aaron Shroyer, Sarah Strochak, Martha Fedorowicz, Steven Martin, and Yipeng Su. 2019. *Meeting the Washington Region's Future Housing Needs: A Framework for Regional Deliberations*. Washington, DC: Urban Institute.
- Azzolini, Davide, Signe-Mary McKernan, and Kassandra Martinchek. 2020. "Households with Low Incomes Can Save: Evidence and Lessons from Two Matched Savings Programs in the US and in Italy." Washington, DC: Urban Institute.
- Bartfield, Judith, and J. Michael Collins. 2017. "Food Insecurity, Financial Shocks, and Financial Coping Strategies among Households with Elementary School Children in Wisconsin." *The Journal of Consumer Affairs* 51 (3): 519–48.
- Bernstein, Hamutal, Dulce Gonzalez, Michael Karpman, and Stephen Zuckerman. 2020. "Amid Confusion over the Public Charge Rule, Immigrant Families Continued Avoiding Public Benefits in 2019." Washington, DC: Urban Institute.
- Bogle, Mary, Emily Bramhall, Olivia Fiol, Peace Guam, Elaine Maag, Eleanor Noble, Peter Tatian, Timothy Triplett, and Faye Walker. 2022. *An Evaluation of THRIVE East of the River: Findings from a Guaranteed Income Pilot during the COVID-19 Pandemic*. Washington, DC: Urban Institute.
- CDC (Centers for Disease Control and Prevention). 2014. "Chapter 2: Grocery Stores: Encouraging Full Service Grocery Stores to Locate in Underserved Areas and Promote Healthier Foods." In *Healthier Food Retail: An Action Guide for Public Health Practitioners*, 31–46. Atlanta: CDC.
- Coleman-Jensen, Alisha, Matthew P. Rabbitt, Christian A. Gregory, and Anita Singh. 2021. *Statistical Supplement to Household Food Security in the United States in 2020*. Washington, DC: US Department of Agriculture, Economic Research Service.
- Hahn, Heather, Rayanne Hawkins, Alexander Carther, and Alena Stern. 2020. "Access for All: Innovation for Equitable SNAP Delivery." Washington, DC: Urban Institute.
- Geno Tai, Don Bambino, Irene Sia, Chyke Doubeni, and Mark Wieland. 2021. "Disproportionate Impact of COVID-19 on Racial and Ethnic Minority Groups in the United States: a 2021 Update." *Journal of Racial and Ethnic Health Disparities*: 1–6. <https://www.doi.org/10.1007/s40615-021-01170-w>.
- Martinchek, Kassandra, Emily Engelhard, Poonam Gupta, Elaine Waxman, Julie Hilvers, and Jessica Jelinski. Forthcoming. *Developing A Flexible Measure to Understand Food Access*. Washington, DC; Chicago: Urban Institute; Feeding America.
- Noe-Bustamante, Luis, Jens Manuel Krogstad, and Mark Hugo Lopez. 2021. *For US Latinos, COVID-19 Has Taken a Personal and Financial Toll*. Washington, DC: Pew Research Center.
- Waxman, Elaine, Craig Gundersen, Caroline Ratcliffe, Nathan Joo, Cary Lou, Sarah Benatar, and Rebecca Peters. 2019. *Unmet Charitable Food Need in Alameda County*. Washington, DC: Urban Institute.

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